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Chemicals Evaluated for Control of Plant-parasitic Nematodes

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This report concerns the results of research. These scientific findings are given exclusively for the use of scientists performing research with nematocides. When safe, effective nematocides are discovered and approved, the Department will be able to recommend their application and use to the public.

CHEMICALS EVALUATED FOR CONTROL OF PLANT-PARASITIC NEMATODES

By Julius Feldmesser, Morton Beroza, R. V. Rebois, A. L. Taylor, Evelyn M. Osborne, and Thelma S. Golden[1]

More than a thousand chemicals have been screened as part of a continuing program to discover and develop chemical compounds capable of killing plant-parasitic nematodes in, on, or around the roots of established plants without damage to the roots. The results of these tests are given in this report.

This program was started at Hicksville, N.Y., in 1951 and has been continued at Orlando, Fla., since 1956. In the course of the work, procedures were developed or adapted to evaluate more fully the effective materials. These procedures are described in this report.

Thanks are due S. A. Hall and S. I. Gertler, Pesticide Chemicals Research Branch, Entomology Research Division, for supplying many of the chemicals; and Vernon G. Perry, Jack E. Solomon, and Alfred T. Tomerlin, Jr., Crops Protection Research Branch, and W. A. Feder, Fruit and Nut Crops Research Branch, Crops Research Division, for helping in some of the routine screening.

BACKGROUND

The use of nematocidal chemicals is not new. During the last half of the 19th century carbon disulfide was used in Germany and France as an insecticide (5)[2] to control the grape phylloxera (Phylloxera vitifoliae (Fitch)), and it was also found to be active against the sugar-beet nematode (Heterodera schachtii Schmidt). Unfortunately, large quantities of the chemical are required for effective control and its use is hazardous. Chloropicrin, surplus stocks of which became available after World War I, has been marketed as a nematocidal fumigant since 1937. A disadvantage of both chemicals is their extremely high toxicity to established plants.

During and immediately after World War II three fumigants, currently in widest use, became available. They are a combination of 1,3-, 2,3-, and 3,3-dichloropropenes and 1,2-dichloropropane (D-D mixture), ethylene dibromide (EDB), and methyl bromide. The first two are used as technical-grade liquids in field-scale treatments. They are applied by means of tractor-drawn chisel or blade applicators in various formulations, e.g., on solid carriers and in emulsifiable concentrates. Methyl bromide is used primarily as a seedbed and chamber fumigant, and under certain conditions it will kill most living organisms including nematodes in soil or in other media.

Although toxic to plants, the three fumigants have been invaluable in controlling nematode infections of annual crops by soil applications at regular intervals prior to planting. Such treatments reduce nematode populations from levels that cause stunting, chlorosis, water-stress symptoms, root galling, reduction in fruit and flower yield, and increased susceptibility to invasion by secondary disease organisms to levels that allow the growth of thriftier and more productive plants. By applying these materials properly to crops of high value, the grower can expect a fourfold to twelvefold return on his nematocide investment in cash value of his crops.

No entirely satisfactory materials are known today that can reduce nematode populations in the roots of already established plants. Such chemicals are needed to control nematode infections in perennials, e.g., Pratylenchus spp. (root-lesion nematodes) in cherry, walnut, and apple plantings; Radopholus (burrowing nematode) in ornamentals and

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[2] Numbers in parentheses refer to Literature Cited at the end of this report.

citrus, which is also attacked by Tylenchulus (citrus-root nematode); Belonolaimus (sting nematode) in forest crops; and Meloidogyne spp. (root-knot nematodes) in ornamentals and peach. Nematocides are also needed for use on annual plants in situ during their growing periods.

Chemicals applied as bare-root dips and drenches on or around living plants should kill nematodes or render plant tissues repellent to them. The ideal material would cause no adverse growth effects and would permit plants to make accelerated growth responses after treatment. Some currently available materials, such as 1,2-dibromo-3-chloropropane (DBCP) and sodium methyldithiocarbamate (SMDC) represent definite advances, because they are less phytotoxic in some instances than D-D mixture, EDB, and methyl bromide, but they are not as consistently effective for nematode control in the hands of the user. [3]

To aid in the finding of nematocides that can penetrate soil and roots more efficiently and yet not injure established plants, more knowledge about the nematocidal action of chemical compounds is required and more efficient means of application need to be devised.

OBJECTIVES OF NEMATOCIDE-SCREENING PROGRAM

This screening program has been designed to--

(1) Find chemicals that will kill or repel nematodes that attack roots and to explore such activity in compounds related to the promising ones.
(2) Determine phytotoxic and growth-regulatory effects of such chemicals.
(3) Formulate and use chemicals as repellents, systemics, root dips, drenches, or fumigants and evaluate the activity of these preparations against nematodes on or in living plants under practical conditions.
(4) Devise and standardize techniques for the reliable and rapid evaluation of chemicals.
(5) Correlate chemical structure and nematocidal action.
(6) Help accelerate the development of new nematocides by cooperating with industrial firms.

PRIMARY SCREENING TEST

Only the results of the primary screening test are given in this report (tables 1 and 2). Two previous tests were made. In the first test "cysts," or dead spherical females containing viable larvae and embryonated eggs, of Heterodera rostochiensis Wollenweber were used. They were washed from soil in Hicksville, N. Y., exposed to candidate nematocides for standard periods, and then cut open and examined under the binocular dissecting microscope to determine the effects of the treatments. In the second test bare-rooted Pratylenchus- and Meloidogyne-infected plants were used. This is essentially the same test that is described under Bare-Root Dip. This test method was discarded after several hundred chemicals had been screened, because it did not yield information rapidly enough. The materials were rescreened in the current primary test.

This primary test, believed to be superior to the "water screen" type (3, 8), was developed during this screening program (9). It makes possible rapid preliminary screening of chemicals for nematocidal activity. It is reproducible, uses very small amounts of test chemicals (100 mg. is sufficient for several replications), and allows test nematode populations to come in contact with the toxicants in the solid, liquid, and

[3] The mention of a proprietary product does not imply its endorsement by the U. S. Department of Agriculture over similar products not named.

vapor phases. In addition, it eliminates approximately 98 percent of the candidate nematocides. This makes it possible to spend maximum time on the necessary further evaluation of the few promising materials. A description of this technique and several procedures for growing the test nematodes in the laboratory follow.

Mixed populations of Rhabditis and Panagrellus spp. are grown in oatmeal (7), on sliced raw potato, on washed quartz sand, or on sterilized cellulose sponge drenched with potato broth. The last two substrates are preferred because they yield large numbers of nematodes that can be freed easily of adhering organic matter. Early tests indicated that the adhering organic matter is detrimental, probably because it adsorbs or absorbs the chemical. It was also found that nematode populations serving as controls often failed to survive in closed vials containing large amounts of organic matter, presumably because conditions become unfavorable for respiration. Panagrellus has been shown to require relatively low oxygen tensions (4).

The potato broth is prepared by heating 100 grams of fresh white potato in a liter of water until the potato has disintegrated. Cellulose sponge pieces, about 6 by 2.5 by 1 cm., are soaked in the strained broth, placed in petri dishes, and sterilized. Each sponge piece is then inoculated with approximately 100 nematodes from a previous culture. Water sufficient to cover the bottom of the dish is then added. No attempt is made to free the nematodes from associated organisms, and no special precautions are taken to prevent contamination of the cultures by bacteria or fungi. The nematodes may feed on organisms associated with fermentation of the medium as well as on the medium itself. Cultures, which are maintained at temperatures varying from 20° to 25° C., contain large numbers of nematodes after about 2 weeks.

Nematodes washed from the sponges into a beaker are poured through a U.S. standard 60-mesh sieve nested in a U.S. standard 200-mesh sieve. The nematodes caught on the 200-mesh sieve, after gentle rinsing with tap water, are substantially free of organic matter. They are washed into a beaker and concentrated by settling and decanting until there are about 100 in 1 ml. of water.

Test chemicals are made up to contain 1,000 p.p.m. of the technical material by volume. Water or water-acetone mixtures or emulsions may be used for these dilutions. Solvents, wetting agents, and emulsifiers used in formulations must not be nematocidal under the conditions of this test. Minimum amounts of acetone, AR-55 and AR-60 (Velsicol products), and "OM-957 Bayer 8139-Emulsifier B" (a Bayer product) have exerted no nematocidal action in this test.

Test containers are glass vials of 5.1-ml. average capacity with plastic screw caps. The vials are filled about two-thirds full with thoroughly washed dry quartz sand, and 1 or 2 ml. of the nematode suspension is added to each vial (fig. 1). Appropriate amounts of the test chemicals (10, 20, 40, 80, or 100 p.p.m. of the vial by volume) are added. Thus, 0.51 ml. of the 1,000-p.p.m. stock preparation is the greatest amount added to a vial. The candidate chemical solution is delivered into the vials from a standard model microburette calibrated in twentieths of a milliliter, and the vials are shaken to mix the sand, nematodes, and chemical thoroughly. Enough additional sand is then added to each vial so that the resultant mixture is damp, not wet. A control vial with nematodes and sand but no chemical, or with the solvent, wetting agent, or other material used in the formulation, is prepared for each five vials set up with a test chemical.

Test vials are stored for 48 hours at 20° C. The contents are then washed into a 100-ml. beaker with a stream of water, brisk enough to force all the sand out of the vial. The sand is allowed to settle for a few seconds, and the supernatant fluid containing the nematodes is poured into a coarse-porosity sintered-glass funnel and filtered by suction. The process is repeated and the nematodes are finally washed from the funnel into a marked counting dish.

The test is dependent mainly on the fact that healthy specimens of the test nematodes, Rhabditis and Panagrellus spp., are in continuous rapid motion when they are maintained under favorable environmental conditions. The effects of candidate chemicals are judged by observing changes in the motility of exposed nematodes under a binocular dissecting microscope at magnifications of 10 X to 60 X. If a large percentage of the nematodes from a test vial are active, the treatment can be judged ineffective without further examination. If all or most of the nematodes are motionless, the dish containing them is set aside at room temperature for 2 or 3 days. At the end of this period, nematodes that were paralyzed from lack of oxygen or from exposure to a test chemical have

Figure 1.--Glass vials used in the preliminary screening of nematocides.

revived and become motile. Dead nematodes, on the other hand, have started to disintegrate. The contents of the bodies are darker than those of living nematodes, especially at the anterior end. A reliable assessment of the efficacy of a chemical can be obtained from several replications of each treatment (100-200 nematodes per replicate) without making decisions as to whether or not each nematode is dead. If nonmotile nematodes must be examined in a more detailed way to determine viability, artificial stimulation and estimates of the degree of turgor of individual nematodes can be used as indications of their condition (1).

Effective chemicals kill all nematodes in all replications at the higher rates. At rates a little less than the lethal dosage, results are erratic. In vials with ineffective chemicals, most of the nematodes are alive and moving at the first examination. A peculiarity of Panagrellus is that it is ovoviviparous, unlike most free-living and plant-parasitic nematodes, which are oviparous. Thus, the females often contain living active larvae. This stage is the most difficult to kill by chemical or other means. These individuals often remain active after exposure to concentrations of chemicals equal to the LD_{95} dosage for other stages.

Results are reproducible within reasonable limits. Tests with D-D mixture indicate that the minimum lethal concentration is between 40 and 50 p.p.m. When results with D-D mixture over a range of concentrations from 10 to 125 p.p.m. are plotted on logarithmic-probability paper, the results lie near a straight line and rates of kill occur more or less in proportion to the application rate. Candidate materials slightly inferior

to D-D mixture's efficacy in this test are still considered worthy of further consideration if they pass the plant tolerance and drench test described under Follow-Up Tests.

RATING OF CHEMICALS

The nematocidal activity of the chemicals in the primary screening test has been divided into six classes as follows:

Activity class	Dosage (p.p.m.)	Percent kill
0	100	0- 75
1	80	0- 75
	100	75-100
2	40	0- 75
	80	75-100
3	20	0- 75
	40	75-100
4	10	0- 75
	20	75-100
5	10	75-100
6	10	100

Chemicals found to be in activity classes 5 and 6 and some in class 4 were further evaluated in one or more of the follow-up tests described below. Since most of the chemicals were eliminated from further consideration in the plant-tolerance and drench test and most of the remainder in one of the other tests, the results are not given here. The tests are described because they have been found useful and illustrate the kind of tests that must be used in addition to the primary screening test to select nematocides of practical value for field use.

FOLLOW-UP TESTS

Plant Tolerance and Drench

This test is designed to demonstrate the ability of a candidate nematocide to kill nematodes in, on, and around roots of established plants after moving downward in the soil and also to demonstrate the plants' tolerance to such treatment. The test is a critical one, since it is the closest greenhouse approximation to field-plot and field conditions.

Tomato and squash plants infected with Meloidogyne spp. (root-knot nematodes) and Radopholus similis (Cobb) Thorne (burrowing nematode) and citrus seedlings infected with Pratylenchus spp. (root-lesion nematodes) are grown in pots in the greenhouse. They are drenched with candidate nematocides at three dosage levels, which can later be duplicated in field tests, if need be, as pounds or gallons per acre (6). The data obtained in the primary screening test determine the dosage levels in this follow-up test. Formulations are made with minimum amounts of solvents, emulsifiers, and wetting agents. Each test is conducted with approximately 30 pots, enough plants so that half of them--five pots at each dosage rate--can be maintained in the greenhouse for examination at regular weekly or monthly intervals to determine the rate of nematode kill within the roots. Mortality counts are also made on nematodes freed from roots (10) or from the surfaces of roots undergoing incubation (11). The other half of the treated plants--also five pots at each dosage rate--are maintained under greenhouse conditions through a growing season. Observations are made for the occurrence of chlorosis, leaf curl, leaf drop, stunting, dieback, and other symptoms of chemical damage. Nematocidal chemicals that are found to be phytotoxic under these conditions are discarded.

Movement Through Soil

This test determines the diffusion properties of chemicals in the soil. It can be run concurrently with the plant-tolerance and drench test. Friable soil naturally infested with forms such as root-knot, Belonolaimus (sting nematode), Hoplolaimus (crown-headed lance nematode), and various dorylaimid nematodes is placed in a series of containers, usually quart mason jars, after all soil clods and lumps have been broken up. Each jar is filled within 1 inch of the top, and the appropriate quantity of chemical, usually equivalent to 100 to 200 pounds of technical material per acre (6), is introduced into a shallow hole in the soil of each jar and the holes are tamped shut. The jars are sealed and stored at 20° C. for 48 hours. The soil is then removed and exposed to the atmosphere for 24 hours. An aliquot, usually one-half of the soil, is placed in water in a baermann funnel, which has a pinchcock arrangement at the bottom. After 24 hours, nematodes that have sunk in the funnel to a point just above the pinchcock are drawn off. They are examined under a microscope for signs of death and amount of motility, and mortality counts are made. Similar tests with D-D mixture are run at regular intervals for purposes of comparison. The D-D mixture is lethal to all nematodes under these conditions. The results give a measure of the penetrative powers of a chemical in the soil.

Bare-Root Dip

This test, a modification of the plant-tolerance and drench test, is designed to fill a continuing urgent need for a bare-root dip that can kill nematodes in the roots of plants dug from seedbeds or nurseries and prior to field planting. The test is conducted on root-knot-infected tomato and on Radopholus- and Pratylenchus-infected citrus seedlings. The roots, freed of adhering soil, are dipped up to the root crown in solutions or suspensions containing up to 2.0 percent of the candidate nematocide for periods of 10 minutes, 30 minutes, and 1, 8, and 24 hours. The plants are transferred to pots of steam-sterilized soil and maintained in the greenhouse. As described under the plant-tolerance and drench tests, enough plants are set up to permit half to be unpotted at regular intervals to determine the nematocidal activity of the chemical and the other half to be held for determination of chemical damage to the plants themselves.

This test is also used to determine the ability of candidate nematocides to repel nematodes from plant roots. Greenhouse-germinated nematode-free tomato and citrus seedlings are bare-rooted, dipped in the same manner as described above, and then transferred to pots of nematode-infested soil and maintained in the greenhouse. Plants are unpotted at intervals to determine the presence of nematodes in the roots. In long-term tests, treated plants are grown adjacent to nematode-infected plants.

Systemic Action

Acetone solutions of candidate nematocides are sprayed on bean plants in the primary leaf stage, i.e., with the first trifoliate bud unopened. The treated plant is observed for indications of growth modification at points removed from the area of application. Unsprayed plants growing in the same pots and covered by bell jars during the spraying procedure are observed for signs of growth modification that would indicate downward movement of the test chemical in the exposed plants and its subsequent uptake by the roots of unexposed plants. Systemic treatments may cause such responses as lateral bud stimulation, cessation of terminal growth, accelerated growth, increased root formation, and various leaf, stem, and root malformations. The check chemical used in this test is methoxyphenylacetic acid (MOPA), which moves downward in the bean plant and causes growth abnormalities. Nematocidal effects are determined by examining nematodes recovered from infected roots by use of the Waring blendor (10) or by incubation (11).

Small Field Plots

Chemicals surviving the first three follow-up tests, exhibiting nematocidal activity as great as D-D mixture, EDB, and methyl bromide and at the same time causing no injury to plants growing in situ, are tested in small randomized field plots. Plots are located in Radopholus-and Pratylenchus-infected citrus groves containing from 1 to 20 trees and in commercial nurseries containing root-knot-, Radopholus-, and Pratylenchus-infected ornamentals. A range of dosages and several methods of application (drench, injection) are used. Root and soil samples are inspected periodically and treated plants are observed for signs of injury and growth responses resulting from chemical exposure.

NAMING AND LISTING OF CHEMICALS

The Chemical Abstracts system of nomenclature is employed. Chemicals of known structure are listed alphabetically in table 1 and those of unknown or indefinite structure in table 2. A few officially approved common or trade names are given with a cross reference to their chemical names. Item numbers have been assigned to the chemicals in the order that they appear in the tables.

NEMATOLOGY (NEM-), ENTOMOLOGY (ENT-), AND ITEM NUMBERS

Compounds were tested in this screening program under Nematology numbers (NEM-), which were assigned in the order the chemicals were received by the Nematology Investigations Unit, Crops Research Division, Orlando, Fla. Entomology numbers (ENT-), formerly Orlando numbers (O-) of King (2), were assigned to compounds tested in the Entomology Research Division. To facilitate the location of compounds listed here and in other publications issued by the U.S. Department of Agriculture, the item numbers of both the Nematology and Entomology numbers appearing in this report are given in the indexes.

SOURCES OF CHEMICALS

Cooperative relations exist between the Nematology Investigations Unit at Orlando and the Pesticide Chemicals Research Branch, Entomology Research Division, at Beltsville, Md. The chemists of the latter branch supply samples of various compounds for preliminary testing and then supply compounds related to those that show promise, as well as larger amounts of the promising ones for further testing. In addition, the Plant Products Laboratory, Eastern Utilization Research and Development Division, Agricultural Research Service, at Philadelphia, Pa., and commercial groups supply samples for testing.

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TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
1	1065	Acetaldehyde, 2-(2-ethoxyethoxy)ethyl p-(3-oxobutyl)phenyl acetal..	0	100	32	31905
2	1018	Acetaldehyde, 2-(2-ethoxyethoxy)ethyl 1-(piperonyl)ethyl acetal....	0	100	19	31664
3	1066	Acetaldehyde, ethyl p-(3-oxobutyl)phenyl acetal.....	0	100	21	31910
4	9	Acetamide, 2-(2,4-dichlorophenoxy)-N-(3-thiazolyl)-.....	3	40	94	--
5	1060	Acetamide, 2-fluoro-.....	0	100	3	25667
6	865	Acetanilide, 3',4'-dichloro-.....	0	100	68	31362
7	407	Acetanilide, 2',4'-dichloro-5'-hydroxy-.....	0	100	67	--
8	1012	Acetanilide, 4',5'-methylenedioxy-2-phenyl-2'-propyl-.....	0	100	88	31624
9	76	Acetic acid, (2-benzothiazolyloxy)-.....	4	20	83	15298
10	6 200	Acetic acid, (2-benzothiazolyloxy)-, sodium salt.....	0 2	100 80	25 88	24485
11	192	Acetic acid, (2-benzothiazolylthio)-, ethyl ester.....	3	40	98	21296
12	133	Acetic acid, bromo-, benzyl ester.....	5	10	96	18917
13	463	Acetic acid, bromo-, 2-(2-butoxyethoxy)ethyl ester.....	3	40	98	13062-a
14	462	Acetic acid, bromo-, 2-butoxyethyl ester.....	4	20	99	20960
15	153	Acetic acid, bromo-, 4-sec-butylcyclohexyl ester.....	6	1.25	70	18937
16	138	Acetic acid, bromo-, 2-butyloctyl ester.....	0	150	49	18922
17	145	Acetic acid, bromo-, 2-(p-tert-butylphenoxy)ethyl ester.....	1	100	97	18929
18	471	Acetic acid, bromo-, 2-(p-sec-butylphenoxy)-1-methylethyl ester....	1	150	98	21143
19	460	Acetic acid, bromo-, p-chlorobenzyl ester.....	6	5	99	19815
20	146	Acetic acid, bromo-, 2-chloroethyl ester.....	4	20	99	18930
21	475	Acetic acid, bromo-, 2-chloro-1-methylethyl ester.....	4	20	99	21157
22	467	Acetic acid, bromo-, p-chlorophenethyl ester.....	6	2.5	88	21135
23	472	Acetic acid, bromo-, 2-(o-chlorophenoxy)-1-methylethyl ester.....	5	10	97	21144
24	470	Acetic acid, bromo-, 2-(p-chlorophenoxy)-1-methylethyl ester.....	6	5	79	21142
25	476	Acetic acid, bromo-, 3-chloropropyl ester.....	4	20	99	21158
26	1039	Acetic acid, bromo-, 2-cyanoethyl ester.....	3	40	99	--
27	129	Acetic acid, bromo-, cyclohexyl ester.....	6	5	75	13005
28	773	Acetic acid, bromo-, 2-cyclohexylcyclohexyl ester.....	0	100	30	31053
29	456	Acetic acid, bromo-, 4-cyclohexylcyclohexyl ester.....	6	2.5	99	18938
30	141	Acetic acid, bromo-, 2-cyclohexylethyl ester.....	5	10	99	18925
31	483	Acetic acid, bromo-, cyclopentyl ester.....	5	10	99	22717
32	681	Acetic acid, bromo-, decyl ester.....	6	< 5	99	30395
33	221	Acetic acid, bromo-, 2,3-dibromopropyl ester.....	2	80	86	21394
34	473	Acetic acid, bromo-, 2-(2,4-dichlorophenoxy)-1-methylethyl ester...	2	80	99	21145
35	148	Acetic acid, bromo-, diester with 1,3-butanediol.....	4	20	97	18932
36	247	Acetic acid, bromo-, diester with 1,4-butanediol.....	3	40	83	21431
37	151	Acetic acid, bromo-, diester with ethylene glycol.....	4	20	88	18935
38	459	Acetic acid, bromo-, diester with 1,5-pentanediol.....	6	5	91	19087
39	246	Acetic acid, bromo-, diester with 1,2-propanediol.....	3	40	99	21430
40	263	Acetic acid, bromo-, 2,4-dimethylbenzyl ester.....	3	40	97	21585

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
41	678	Acetic acid, bromo-, 3,4-dimethylbenzyl ester	5	10	99	30204
42	149	Acetic acid, bromo-, 1,3-dimethylbutyl ester	4	20	99	18933
43	733	Acetic acid, bromo-, 2,2-dimethylpentyl ester	5	10	85	30914
44	457	Acetic acid, bromo-, dodecyl ester	6	2.5	98	18939
45	468	Acetic acid, bromo-, ester with citronellol	5	10	95	21136
46	466	Acetic acid, bromo-, ester with 3,9-diethyl-6-tridecanol	1	200	83	21134
47	464	Acetic acid, bromo-, 2-ethylbutyl ester	5	10	98	21132
48	136	Acetic acid, bromo-, 2-ethylhexyl ester	5	10	97	18920
49	465	Acetic acid, bromo-, 4-ethyl-1-methyloctyl ester	1	200	96	21133
50	137	Acetic acid, bromo-, 1-ethylpentyl ester	4	20	99	18921
51	134	Acetic acid, bromo-, 1-ethylpropyl ester	5	10	99	18918
52	469	Acetic acid, bromo-, heptyl ester	6	1.25	96	21139
53	757	Acetic acid, bromo-, hexadecyl ester	0	100	19	30739
54	461	Acetic acid, bromo-, hexyl ester	6	1.25	94	20959
55	139	Acetic acid, bromo-, 1-isobutyl-3-methylbutyl ester	2	80	96	18923
56	143	Acetic acid, bromo-, 2-isopropylcyclohexyl ester	4	20	95	18927
57	142	Acetic acid, bromo-, 4-isopropylcyclohexyl ester	6	2.5	99	18926
58	485	Acetic acid, bromo-, 3-methoxybutyl ester	4	20	98	21926
59	152	Acetic acid, bromo-, 2-(2-methoxyethoxy)ethyl ester	1	100	99	18936
60	147	Acetic acid, bromo-, 2-methoxyethyl ester	4	20	93	18931
61	478	Acetic acid, bromo-, 2-methoxy-1-methylethyl ester	3	40	99	22360
62	140	Acetic acid, bromo-, 4-methylcyclohexyl ester	5	10	99	18924
63	135	Acetic acid, bromo-, 2-methylpentyl ester	5	10	99	18919
64	482	Acetic acid, bromo-, 1-methyl-2-phenoxyethyl ester	5	10	93	22400
65	479	Acetic acid, bromo-, p-nitrobenzyl ester	3	40	99	21463
66	742	Acetic acid, bromo-, nonyl ester	6	<10	99	30590
67	150	Acetic acid, bromo-, octyl ester	6	1.25	99	18934
68	132	Acetic acid, bromo-, phenethyl ester	5	10	99	18690
69	144	Acetic acid, bromo-, 2-phenoxyethyl ester	4	20	80	18928
70	481	Acetic acid, bromo-, 3-(3-phenoxypropoxy)propyl ester	3	40	98	22356
71	131	Acetic acid, bromo-, 3-phenylpropyl ester	5	10	99	18537
72	846	Acetic acid, bromo-, 2-propylheptyl ester	0	100	68	31309
73	474	Acetic acid, bromo-, tetradecyl ester	2	80	99	21156
74	128	Acetic acid, bromo-, tetrahydrofurfuryl ester	3	40	99	7482
75	477	Acetic acid, bromo-, tetrahydropyran-2-ylmethyl ester	3	40	97	21179
76	458	Acetic acid, bromo-, 2,2,2-trichloroethyl ester	1	100	95	18940
77	568	Acetic acid, bromo-, triester with glycerol	4	20	83	30211
78	727	Acetic acid, bromo-, undecyl ester	6	< 10	99	30901
79	3	Acetic acid, (2-butyl-x-chlorophenoxy)-	0	100	24	--
80	252	Acetic acid, (p-tert-butylphenoxy)-, 2-chloroethyl ester	0	100	71	21483
81	599	Acetic acid, chloro-, benzyl ester	2	80	97	18343

82	597	Acetic acid, chloro-, 4-biphenylyl ester	4	20	83	16233
83	675	Acetic acid, chloro-, 2-bromo-4-biphenylyl ester	1	100	82	23387
84	809	Acetic acid, chloro-, 6-bromo-alpha-(1-bromoethyl)piperonyl ester	1	100	96	31061
85	648	Acetic acid, chloro-, 2-bromo-4-tert-butylphenyl ester	1	100	98	23266
86	631	Acetic acid, chloro-, 2-bromoethyl ester	5	10	98	22391
87	640	Acetic acid, chloro-, p-bromophenyl ester	4	20	87	23258
88	654	Acetic acid, chloro-, 4-tert-butyl-2-chlorophenyl ester	2	80	97	23366
89	607	Acetic acid, chloro-, 2-sec-butylcyclohexyl ester	0	100	67	18417
90	660	Acetic acid, chloro-, 2-tert-butyl-6-isopropylphenyl ester	1	100	81	23372
91	693	Acetic acid, chloro-, 2-(p-sec-butylphenoxy)-1-methyethyl ester	0	100	59	30424
92	651	Acetic acid, chloro-, p-tert-butylphenyl ester	1	100	98	23269
93	652	Acetic acid, chloro-, 4-tert-butyl-m-tolyl ester	1	100	95	23270
94	655	Acetic acid, chloro-, 4-tert-butyl-o-tolyl ester	1	100	98	23367
95	768	Acetic acid, chloro-, calcium salt	0	100	8	--
96	656	Acetic acid, chloro-, carvacryl ester	2	80	96	23368
97	629	Acetic acid, chloro-, p-chlorobenzyl ester	3	40	100	22389
98	668	Acetic acid, chloro-, 2-chloro-4-biphenylyl ester	3	40	99	23380
99	202	Acetic acid, chloro-, 2-chloroethyl ester	2	80	82	18412
100	637	Acetic acid, chloro-, o-chlorophenyl ester	3	40	93	23255
101	638	Acetic acid, chloro-, p-chlorophenyl ester	3	40	99	23256
102	647	Acetic acid, chloro-, 4-chloro-o-tolyl ester	4	20	82	23265
103	657	Acetic acid, chloro-, 6-chloro-o-tolyl ester	1	100	98	23369
104	602	Acetic acid, chloro-, cyclohexyl ester	3	40	88	18409
105	771	Acetic acid, chloro-, 2-cyclohexylcyclohexyl ester	0	100	54	31051
106	670	Acetic acid, chloro-, 2-cyclohexyl-4,6-dinitrophenyl ester	1	100	98	23382
107	596	Acetic acid, chloro-, o-cyclohexylphenyl ester	1	80	74	2800
108	659	Acetic acid, chloro-, p-cyclohexylphenyl ester	1	100	82	23371
109	634	Acetic acid, chloro-, cyclopentyl ester	3	20	48	22716
110	756	Acetic acid, chloro-, decyl ester	3	40	99	30732
111	676	Acetic acid, chloro-, 2,6-dibromo-4-tert-butylphenyl ester	0	100	68	23389
112	663	Acetic acid, chloro-, 3,5-dichloro-2-biphenylyl ester	0	100	72	23375
113	665	Acetic acid, chloro-, 2,4-dichloro-1-naphthyl ester	1	100	86	23377
114	641	Acetic acid, chloro-, 2,4-dichlorophenyl ester	4	20	98	23259
115	598	Acetic acid, chloro-, diester with 4,4'-biphenyldithiol	1	80	75	17045
116	610	Acetic acid, chloro-, diester with 1,3-butanediol	3	40	93	18487
117	633	Acetic acid, chloro-, diester with 1,4-butanediol	3	40	93	22440
118	612	Acetic acid, chloro-, diester with 2-ethyl-1,3-hexanediol	3	40	85	18498
119	806	Acetic acid, chloro-, diester with ethylene glycol	1	100	97	2151
120	611	Acetic acid, chloro-, diester with 1,5-pentanediol	2	40	68	18495
121	614	Acetic acid, chloro-, diester with 1,2-propanediol	2	40	67	18500
122	666	Acetic acid, chloro-, diester with pyrocatechol	1	100	90	23378
123	667	Acetic acid, chloro-, p-(alpha,alpha-dimethylbenzyl)phenyl ester	1	100	86	23379
124	618	Acetic acid, chloro-, 1,3-dimethylbutyl ester	2	40	69	18524
125	888	Acetic acid, chloro-, 2,2-dimethyl-3-(2-methylpropenyl)-cyclopropylmethyl ester	0	100	24	31387
126	732	Acetic acid, chloro-, 2,2-dimethylpentyl ester	1	100	98	30913
127	658	Acetic acid, chloro-, ester with eugenol	1	100	97	23370
128	662	Acetic acid, chloro-, ester with isoeugenol	0	100	74	23374

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
129	671	Acetic acid, chloro-, ester with methylsalicylate	1	100	90	23383
130	619	Acetic acid, chloro-, 1-ethylpentyl ester	3	40	77	18525
131	643	Acetic acid, chloro-, m-ethylphenyl ester	3	40	83	23261
132	644	Acetic acid, chloro-, p-ethylphenyl ester	3	40	94	23262
133	617	Acetic acid, chloro-, 1-ethylpropyl ester	2	40	63	18523
134	253	Acetic acid, chloro-, heptyl ester	3	40	97	21528
135	750	Acetic acid, chloro-, hexyl ester	3	20	73	30699
136	613	Acetic acid, chloro-, isobutyl ester	2	80	97	18499
137	605	Acetic acid, chloro-, 2-isopropylcyclohexyl ester	1	80	51	18414
138	646	Acetic acid, chloro-, p-isopropylphenyl ester	3	40	92	23264
139	484	Acetic acid, chloro-, 3-methoxybutyl ester	1	80	73	21925
140	624	Acetic acid, chloro-, 2-(2-methoxyethoxy)ethyl ester	1	80	40	18531
141	615	Acetic acid, chloro-, 2-methoxyethyl ester	2	80	80	18503
142	628	Acetic acid, chloro-, 2-methoxy-1-methylethyl ester	1	80	48	22359
143	673	Acetic acid, chloro-, p-methoxyphenyl ester	1	100	84	23385
144	807	Acetic acid, chloro-, alpha-methylbenzyl ester	0	100	69	18530
145	609	Acetic acid, chloro-, 4-methylcyclohexyl ester	3	40	96	18484
146	616	Acetic acid, chloro-, 1-methylheptyl ester	3	40	90	18522
147	623	Acetic acid, chloro-, 2-methylpentyl ester	3	40	87	18529
148	632	Acetic acid, chloro-, 1-methyl-2-phenoxyethyl ester	2	40	52	22399
149	642	Acetic acid, chloro-, 1-naphthyl ester	5	10	91	23260
150	645	Acetic acid, chloro-, 2-naphthyl ester	2	40	73	23263
151	650	Acetic acid, chloro-, o-nitrophenyl ester	2	80	99	23268
152	661	Acetic acid, chloro-, p-nitrophenyl ester	2	80	89	23373
153	741	Acetic acid, chloro-, nonyl ester	5	10	97	30589
154	669	Acetic acid, chloro-, p-nonylphenyl ester	0	100	68	23381
155	743	Acetic acid, chloro-, octyl ester	4	20	97	30591
156	626	Acetic acid, chloro-, pentachlorophenyl ester	1	80	65	19741-a
157	653	Acetic acid, chloro-, 6-pentyl-m-tolyl ester	1	100	96	23364
158	600	Acetic acid, chloro-, phenethyl ester	3	40	77	18405
159	748	Acetic acid, chloro-, 2-phenoxyethyl ester	1	100	99	7345
160	627	Acetic acid, chloro-, 3-(3-phenoxypropoxy)propyl ester	1	80	72	22355
161	639	Acetic acid, chloro-, phenyl ester	1	100	99	23257
162	672	Acetic acid, chloro-, 2-phenylcyclohexyl ester	0	100	62	23384
163	601	Acetic acid, chloro-, 3-phenylpropyl ester	3	40	97	18407
164	808	Acetic acid, chloro-, piperonyl ester	1	100	99	31011
165	845	Acetic acid, chloro-, 2-propylheptyl ester	0	100	24	31307
166	664	Acetic acid, chloro-, 2,3,4,6-tetrachlorophenyl ester	3	40	92	23376
167	162	Acetic acid, chloro-, tetrahydropyran-2-ylmethyl ester	1	40	63	21189
168	674	Acetic acid, chloro-, m-tolyl ester	1	100	88	23386
169	636	Acetic acid, chloro-, o-tolyl ester	1	80	46	23254

170	635	Acetic acid, chloro-, p-tolyl ester	2	80	76	23253
171	649	Acetic acid, chloro-, 2,4,5-trichlorophenyl ester	3	40	98	23267
172	679	Acetic acid, chloro-, triester with glycerol	1	100	98	30328
173	726	Acetic acid, chloro-, undecyl ester	4 5	20 <10	99 99	30900
174	425	Acetic acid, (4-chloro-o-tolyloxy)-, 2-(2,4-dichlorophenoxy)ethyl ester	0	100	8	--
175	29	Acetic acid, (decylthio)-	0	100	66	16677
176	238	Acetic acid, dichloro-, 2-bromoethyl ester	1	80	72	21409
177	240	Acetic acid, dichloro-, 2-butoxyethyl ester	1	80	70	21411
178	237	Acetic acid, dichloro-, 2-chloroethyl ester	1	80	49	21408
179	230	Acetic acid, dichloro-, cyclohexyl ester	1	80	58	21407
180	1161	Acetic acid, dichloro-, p-(3-oxobutyl)phenyl ester	0	100	11	32137
181	326	Acetic acid, (2,4-dichlorophenoxy)-, anhydride with (2,4,5-trichlorophenoxy)acetic acid	0	100	14	--
182	432	Acetic acid, (2,4-dichlorophenoxy)-, 2-(2,4-dichlorophenoxy)ethyl ester	0	100	2	--
183	290	Acetic acid, (2,4-dichlorophenoxy)-, 1-(ethylcarbamoyl)ethyl ester.	0	100	65	25318
184	422	Acetic acid, (2,4-dichlorophenoxy)-, 1-methyl-2-(2,4,5-trichlorophenoxy)ethyl ester	0	100	9	--
185	427	Acetic acid, (2,4-dichlorophenoxy)-, 2-(2,4,5-trichlorophenoxy)-ethyl ester	0	100	6	--
186	423	Acetic acid, (2,4-dichlorophenoxy)-, 2-(2,4,5-trichlorophenoxy)-propyl ester	0	100	2	--
187	7	Acetic acid, [(2,5-dichlorophenyl)thio]-	2	80	97	--
188	691	Acetic acid, iodo-, benzyl ester	5	10	99	30417
189	696	Acetic acid, iodo-, 2-bromoethyl ester	6	<10	99	30432
190	692	Acetic acid, iodo-, 2-chloroethyl ester	6	<10	99	30422
191	700	Acetic acid, iodo-, diester with ethylene glycol	6	<10	99	30442
192	694	Acetic acid, iodo-, hexyl ester	5	10	100	30426
193	695	Acetic acid, iodo-, 2-phenoxyethyl ester	6	<10	99	30427
194	30	Acetic acid, mercapto-, 2-chloro-1-methylethyl ester	3	40	97	16936
195	32	Acetic acid, mercapto-, dodecylamine salt	3	40	99	15087
196	4	Acetic acid, (methoxyphenyl)-, sodium salt	0	100	3	19941
197	781	Acetic acid, (p-methoxyphenyl)-, 2-bromoethyl ester	1	100	88	31104
198	780	Acetic acid, (p-methoxyphenyl)-, 2-chloroethyl ester	0	100	51	31102
199	16	Acetic acid, phenoxy-, 2-(2-butoxyethoxy)ethyl ester	1	100	95	14743
200	24	Acetic acid, phenoxy-, 2-butoxyethyl ester	1	100	93	14742
201	23	Acetic acid, phenoxy-, 3-hydroxypropyl ester	4	20	93	6311
202	14	Acetic acid, phenoxy-, 2-methoxyethyl ester	1	100	87	2481
203	227	Acetic acid, phenyl-, 2,3-dibromopropyl ester	0	100	47	21400
204	13	Acetic acid, phenyl-, 6-propylpiperonyl ester	1	100	83	16016
205	1232	Acetic acid, trichloro-, diester with 1,4-butanediol	0	100	38	32445
206	840	Acetic acid, trichloro-, alpha-ethylbenzyl ester	0	100	8	31254
207	1162	Acetic acid, trichloro-, p-(3-oxobutyl)phenyl ester	0	100	5	32138
--	--	Acetic acid, (2,4,5-trichlorophenoxy)-, anhydride with (2,4-dichlorophenoxy)acetic acid. (See item 181.)	--	--	--	--

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
208	419	Acetic acid, (2,4,5-trichlorophenoxy)-, 2-(2,4-dichlorophenoxy)-ethyl ester	0	100	8	--
209	421	Acetic acid, (2,4,5-trichlorophenoxy)-, 2-(2,4,5-trichlorophenoxy)-ethyl ester	0	100	10	--
210	418	Acetic acid, (2,4,5-trichlorophenoxy)-, 2-(2,4,5-trichlorophenoxy)-1-methylethyl ester	0	100	20	--
211	426	Acetic acid, (2,4,5-trichlorophenoxy)-, 2-(2,4,5-trichlorophenoxy)-propyl ester	0	100	12	--
212	49	Acetic acid, (xylylthio)-	1	100	99	12114
213	1365	Acetone	0	100	0	1238
214	154	Acetonitrile, (2-allyl-4,5-methylenedioxyphenyl)-	1	100	98	20962
215	680	Acetonitrile, [5-(chloromethyl)-2,4-xylyl]-	0	100	36	30370
216	1038	Acetonitrile, 2,2'-iminodi-	0	100	8	--
217	159	Acetonitrile, (2-propenyl-4,5-methylenedioxyphenyl)-	3	40	79	20989
218	981	Acetonitrile, trichloro-	2	80	99	--
219	1041	Acetophenone, 2-bromo-	5	20	99	--
220	501	Acetophenone, 2-bromo-2-phenyl-	1	100	86	--
221	996	Acetophenone, 2-bromo-4'-phenyl-	1	100	96	22035
222	1040	Acetophenone, 2-chloro-	5	20	99	--
223	995	Acetophenone, 2,4'-dibromo-	5	10	100	--
224	1073	Acetophenone, 4'-hydroxy-, acetate	0	100	48	10544
225	820	Acrylic acid, 2-chloro-, methyl ester	6	4	96	--
226	980	Acrylic acid, 2,3-dichloro-3-formyl-, anhydride	1	100	88	18618
227	8	Acrylic acid, trichloro-	2	80	99	--
228	42	Acrylic acid, trichloro-, sodium salt	0	100	74	18373
--	--	Actidione. (See item 574.)	--	--	--	--
--	--	Actidione-S. (See item 579.)	--	--	--	--
229	375	Agaricic acid	0	100	4	--
230	289	Alanine, N-[(p-chlorophenoxy)acetyl]-3-phenyl-, L-	0	100	30	--
231	277	Alanine, N-[(4-chloro-o-tolyloxy)acetyl]-, D-	0	100	38	--
232	339	Alanine, N-[(4-chloro-o-tolyloxy)acetyl]-, DL-	1	100	83	--
233	284	Alanine, N-[(4-chloro-o-tolyloxy)acetyl]-, L-	0	100	41	--
234	275	Alanine, N-[(4-chloro-o-tolyloxy)acetyl]-3-phenyl-, L-	0	100	44	--
235	302	Alanine, N-[(2,4-dichlorophenoxy)acetyl-,]D-	0	100	62	--
236	303	Alanine, N-[(2,4-dichlorophenoxy)acetyl]-, DL-	1	100	89	--
237	310	Alanine, N-[(2,4-dichlorophenoxy)acetyl-3-{p-[(2,4-dichlorophenoxy)-acetyl]phenyl}-, DL-, methyl ester	0	100	33	--
238	316	Alanine, N-[(2,4-dichlorophenoxy)acetyl]-3-phenyl-, D-	0	100	28	--
239	312	Alanine, N-[(2,4-dichlorophenoxy)acetyl]-3-phenyl-, DL-	1	100	84	--
240	95	Alanine, N-[(2,4-dichlorophenoxy)propionyl]-, DL-	1	100	93	--
241	304	Alanine, N-[2-(2,4-dichlorophenoxy)propionyl]-, DL-	0	100	46	--

242	301	Alanine, N-[2-(2,4-dichlorophenoxy)propionyl]-, L-	0	100	39	--
243	278	Alanine, N-[2-(2,4-dichlorophenoxy)propionyl]-3-phenyl-, D-	0	100	50	--
244	287	Alanine, N-[2-(2,4-dichlorophenoxy)propionyl]-3-phenyl-, DL-	0	100	58	--
245	112	Alanine, 3-phenyl-N-[(2,4,5-trichlorophenoxy)acetyl]-, D-	2	40	56	--
246	107	Alanine, 3-phenyl-N-[(2,4,5-trichlorophenoxy)acetyl]-, DL-	2	80	99	--
247	113	Alanine, 3-phenyl-N-[(2,4,5-trichlorophenoxy)acetyl]-, L-	2	40	53	--
248	364	Alanine, 3-phenyl-N-[2-(2,4,5-trichlorophenoxy)propionyl]-, D-	0	100	15	--
249	365	Alanine, 3-phenyl-N-[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-	0	100	30	--
250	363	Alanine, 3-phenyl-N-[2-(2,4,5-trichlorophenoxy)propionyl]-, L-	0	100	20	--
251	336	Alanine, N-[(2,4,5-trichlorophenoxy)acetyl]-, D-	1	100	84	--
252	338	Alanine, N-[(2,4,5-trichlorophenoxy)acetyl]-, DL-	1	100	79	--
253	337	Alanine, N-[(2,4,5-trichlorophenoxy)acetyl]-, L-	1	100	99	--
254	361	Alanine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, D-	0	100	43	--
255	362	Alanine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-	0	100	31	--
256	360	Alanine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, L-	0	100	45	--
257	805	β-Alanine, N-(2-chloro-4-hydroxy-3,3-dimethylbutyryl)-, DL-, calcium salt	0	100	51	--
258	25	Ammonium compound, benzyldimethyloctadecyl----chloride	2	80	99	9119-b
259	73	Ammonium compound, benzyltriethyl----chloride	1	100	96	14906
260	81	Ammonium compound, benzyltrimethyl----fluophosphate	1	100	96	16952
261	566	Ammonium compound, dimethylbis(o-methylbenzyl)----bromide	0	100	40	30206
262	1	Ammonium compound, dimethyloctylpiperonyl----chloride	1	100	80	--
263	22	Ammonium compound, ethyldimethyloctadecyl----bromide	4	20	91	12211
264	20	Ammonium compound, ethylhexadecyldimethyl----bromide	3	40	91	12210-b
265	68	Ammonium compound, hexadecyltrimethyl----bromide	3	40	98	12209
266	80	Ammonium compound, tetraethyl----fluophosphate	1	100	94	16950
267	83	Ammonium compound, tetramethyl----chloride	2	80	97	19012
268	912	Ammonium thiocyanate	0	100	0	8542
269	1062	Aniline, 4,4'-benzylidenebis[N,N-dimethyl-	0	100	8	22125
270	1027	Aniline, N,N-bis(2-chloroethyl)-	0	100	20	31838
271	786	Aniline, p-bromo-	2	80	92	17277
272	1049	Aniline, N,N-dimethyl-p-(3-oxobutyl)-	0	100	18	31845
273	857	Aniline, N-[(ethylthio)(methylthio)methylidene]-	1	100	92	31316
274	1011	Aniline, 4,5-methylenedioxy-2-propyl-	0	100	61	31623
275	201	Aniline, p-(phenylazo)-	5	10	100	793
276	1023	Aniline, N-(1-piperonylethyl)-	0	100	17	31691
277	747	p-Anisic acid, 2-bromoethyl ester	2	80	99	30603
278	746	p-Anisic acid, 2-chloroethyl ester	1	100	85	30602
279	412	Arbutin	0	100	5	--
280	385	Arecoline, hydrobromide	0	100	5	--
281	283	Asparagine, N^2-[(p-chlorophenoxy)acetyl]-, D-	0	100	54	--
282	298	Asparagine, N^2-[(p-chlorophenoxy)acetyl]-, DL-	0	100	35	--
283	296	Asparagine, N^2-[(2,4-dichlorophenoxy)acetyl]-, D-	0	100	40	--
284	288	Asparagine, N^2-[(2,4-dichlorophenoxy)acetyl]-, L-	0	100	35	--
285	96	Asparagine, N^2-[2-(2,4-dichlorophenoxy)propionyl]-, D-	3	40	85	--
286	276	Asparagine, N^2-[2-(2,4-dichlorophenoxy)propionyl]-, L-	2	80	92	--
287	293	Asparagine, N^2-[(2,4,5-trichlorophenoxy)acetyl]-, D-	0	100	69	--
288	291	Asparagine, N^2-[(2,4,5-trichlorophenoxy)acetyl]-, L-	0	100	62	--

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
289	297	Asparagine, N^2-[2-(2,4,5-trichlorophenoxy)propionyl]-, D-.....	0	100	26	25320
290	295	Asparagine, N^2-[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-.....	0	100	74	--
291	309	Aspartic acid, N-[(2,4-dichlorophenoxy)acetyl]-, D-.....	0	100	52	--
292	51	Aspartic acid, N-[2-(2,4-dichlorophenoxy)propionyl]-, D-.....	4	20	80	--
293	281	Aspartic acid, N-[2-(2,4-dichlorophenoxy)propionyl]-, DL-.....	0	100	73	--
294	330	Aspartic acid, N-[(2,4,5-trichlorophenoxy)acetyl]-, D-.....	1	100	77	--
295	313	Aspartic acid, N-[(2,4,5-trichlorophenoxy)acetyl]-, DL-.....	0	100	43	--
296	331	Aspartic acid, N-[(2,4,5-trichlorophenoxy)acetyl]-, L-.....	1	100	78	--
297	344	Aspartic acid, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-.....	0	100	73	--
298	380	Atropine.....	0	100	6	--
--	--	Avenin. (See item 408.).....	--	--	--	--
299	1052	Benzaldehyde, p-hydroxy-, acetate.....	0	100	18	31884
300	156	Benzene, 1-(allyloxy)-2-methoxy-4-propyl-.....	1	100	90	20976
301	181	Benzene, 2,4-bis(chloromethyl)-1,5-dimethyl-.....	3	40	88	21259
302	776	Benzene, 1-bromo-2-(2-bromo-1-butoxypropyl)-4,5-methylenedioxy-....	0	100	4	31058
303	782	Benzene, 1-bromo-2-[2-bromo-1-(2-ethoxyethoxy)propyl]-4,5-methylenedioxy-.....	0	100	6	31113
304	783	Benzene, 1-bromo-2-[2-bromo-1-(hexyloxy)propyl]-4,5-methylenedioxy-	0	100	12	31114
305	778	Benzene, 1-bromo-2-[2-bromo-1-(isopentyloxy)propyl]-4,5-methylenedioxy-.....	0	100	2	31083
306	777	Benzene, 1-bromo-2-(2-bromo-1-isopropoxypropyl)-4,5-methylenedioxy-	0	100	.7	31062
307	739	Benzene, 1-bromo-2-(2-bromo-1-methoxypropyl)-4,5-methylenedioxy-...	0	100	2	30984
308	779	Benzene, 1-bromo-2-[2-bromo-1-(pentyloxy)propyl]-4,5-methylenedioxy-.....	0	100	3	31084
309	767	Benzene, 1-bromo-2-(2-bromo-1-propoxypropyl)-4,5-methylenedioxy-...	0	100	6	31005
310	920	Benzene, 1-(2-bromoethoxy)-2-chloro-4,5-methylenedioxy-.....	0	100	5	31448
311	841	Benzene, 1-bromo-4,5-methylenedioxy-2-propyl-.....	1	100	98	31255
312	155	Benzene, 1-butoxy-2-methoxy-4-propenyl-.....	1	100	98	20969
313	130	Benzene, 1-(chloromethyl)-2,4-dimethyl-.....	3	40	93	15519
314	157	Benzene, 1,2-dibromo-4,5-methylenedioxy-.....	1	100	96	20986
315	1010	Benzene, 1,2-methylenedioxy-4-nitro-5-propyl-.....	4	100	96	31622
316	894	Benzene, pentachloronitro-.....	0	100	14	23024
317	416	Benzenearsonic acid, p-hydroxy-.....	0	100	4	14867
318	1175	Benzenediazosulfonic acid, p-(dimethylamino)-, sodium salt.....	0	100	42	16841
319	1009	Benzenesulfonanilide, 3',4'-methylenedioxy-6'-propyl-.....	0	100	4	31621
320	1014	Benzenesulfonanilide, N-methyl-4',5'-methylenedioxy-2'-propyl-.....	0	100	5	31626
321	789	Benzenesulfonic acid, m-[p-(anilinophenyl)azo]-, sodium salt.....	0	100	40	--
322	983	Benzenesulfonic acid, dodecyl-.....	2	80	98	--
323	984	Benzenesulfonic acid, dodecyl-, sodium salt.....	1	100	76	--
324	982	Benzenesulfonic acid, pentadecyl-.....	1	100	99	--
325	1021	Benzenethiol, p-tert-butyl-.....	0	100	52	26176

326	249	Benzimidazole, 2-(allylthio)-	1	100	95	21467
327	736	Benzoic acid, 2,3-dibromo-1,1-dimethylpentyl ester	1	100	78	30966
328	40	Benzoic acid, o-benzoyl-, 6-propylpiperonyl ester	4	20	95	16014
329	47	Benzoic acid, 2-benzoyl-4-bromo-	3	40	92	15223
330	43	Benzoic acid, o-(p-bromobenzoyl)-	1	100	91	17657
331	45	Benzoic acid, 2-bromo-3-nitro-	0	100	68	3712
332	44	Benzoic acid, 2-bromo-3-nitro-, methyl ester	1	100	92	16699
333	11	Benzoic acid, 3-bromo-2,4,6-trimethyl-	3	40	87	--
334	41	Benzoic acid, o-[(1-carboxyethyl)thio]-	0	100	48	16117
335	1124	Benzoic acid, o-chloro-, 2,3-dibromopropyl ester	0	100	5	32069
336	890	Benzoic acid, o-chloro-, 2,2-dimethyl-3-(2-methylpropenyl)cyclopropylmethyl ester	0	100	11	31392
337	734	Benzoic acid, o-chloro-, 2,2-dimethylpentyl ester	0	100	12	30920
338	738	Benzoic acid, o-chloro-, heptyl ester	0	100	12	30975
339	863	Benzoic acid, o-chloro-, 2-propylheptyl ester	0	100	7	31355
340	728	Benzoic acid, p-chloro-, undecyl ester	0	100	14	30902
341	48	Benzoic acid, o-(p-chlorobenzoyl)-	1	100	99	15224
342	99	Benzoic acid, p-{[(4-chloro-o-tolyloxy)acetyl]amino}-	1	100	98	--
343	1075	Benzoic acid, p-hydroxy-, acetate	0	100	38	20213
344	562	Benzoic acid, p-isopropyl-, 2-bromoethyl ester	1	100	95	30159
345	561	Benzoic acid, p-isopropyl-, 2-chloroethyl ester	1	100	89	30158
346	564	Benzoic acid, p-isopropyl-, 2,2,2-trichloroethyl ester	0	100	52	30194
347	46	Benzoic acid, o-[(6-propylpiperonyl)thio]-	4	20	97	14729
348	594	Benzoic acid, 2,3,5,6-tetrachloro-	0	100	30	--
349	593	Benzoic acid, 2,3,6-trichloro-	0	100	14	--
350	100	Benzoic acid, p-{[(2,4,5-trichlorophenoxy)acetyl]amino}-	1	100	97	--
351	822	Benzophenone, 2,4-dichloro-	0	100	35	--
352	1028	Benzoquinone, 2,5-dimethoxy-	0	100	12	31839
353	62	Benzothiazole	4	20	98	5742
354	121	Benzothiazole, 2-(allylthio)-	5	10	100	21165
355	122	Benzothiazole, 2-(benzylthio)-	5	10	98	21166
356	489	Benzothiazole, 2-[1-(2-chloroethoxy)ethylthio]-	0	100	33	21935
357	36	Benzothiazole, 2-[2-(2-chloroethoxy)ethylthio]-	4	20	99	2631
358	126	Benzothiazole, 2-[(2-chloroethyl)thio]-	3	20	69	21186
359	84	Benzothiazole, 2-hydrazino-	3	40	99	19054
360	565	Benzothiazole, 2-(2-hydroxyethoxy)-	0	100	32	30200
361	127	Benzothiazole, 2-[(2-hydroxyethyl)thio]-, acetate	3	40	98	21187
362	35	Benzothiazole, 2-mercapto-	2	40	64	985
363	67	Benzothiazole, 2-methyl-	5	10	99	10042
364	54	Benzothiazole, 2-phenyl-	4	20	98	636-b
365	34	Benzothiazole, 2-[(6-propylpiperonyl)thio]-	4	20	98	14727
366	123	Benzothiazole, 2-(propylthio)-	5	10	100	21167
367	72	Benzothiazole, 4,5,6,7-tetrahydro-2-methyl-	3	40	97	14844
368	65	Benzothiazole, 2-undecyl-	4	20	98	8182
369	82	Benzothiazole, 2-[(2-vinyloxyethyl)thio]-	5	10	100	17310
370	74	2-Benzothiazolesulfonamide, N-cyclohexyl-	1	100	94	14909
371	199	2-Benzothiazolol	1	100	97	24487
372	794	Benzo[b]thiophene, 2,3(?)-dichloro-	6	< 10	79	18361

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
373	1100	Benzyl alcohol, p-hydroxy-, alpha-acetate	0	100	22	31974
374	384	Berberine, hydrochloride	1	100	85	--
375	1230	Bi-2,4-cyclopentadien-1-yl, decachloro-	0	100	33	25718
376	872	Borane, (isopropylamino)-	0	100	23	--
377	394	Brucine	0	100	5	--
378	842	1,3-Butanedione, 4,4,4-trifluoro-1-(2-thienyl)-	1	100	84	31295
379	1048	2-Butanol, 4-(p-hydroxyphenyl)-	0	100	32	31843
380	1105	2-Butanol, 4-(p-hydroxyphenyl)-, diacetate	0	100	33	32020
381	1030	2-Butanone, 4-[p-(2-hydroxyethoxy)phenyl]-, acetate	0	100	10	31841
382	1026	2-Butanone, 4-(4-hydroxy-3-methoxyphenyl)-	0	100	29	31837
383	1064	2-Butanone, 4-(4-hydroxy-3-methoxyphenyl)-, acetate	0	100	17	31899
384	1047	2-Butanone, 4-(o-hydroxyphenyl)-	0	100	14	31830-a
385	1029	2-Butanone, 4-(o-hydroxyphenyl)-, acetate	0	100	17	31840
386	512	2-Butyne, 1,4-dibromo-	5	10	100	--
387	250	2-Butyne, 1,4-dichloro-	5	10	97	--
388	950	Butyranilide, 4'-chloro-3-methyl-	0	100	18	31483
389	905	Butyranilide, 3',4'-dichloro-	0	100	37	31408
390	716	Butyric acid, 2-(allyloxy)-1-(chloromethyl)ethyl ester	0	100	13	30496
391	731	Butyric acid, 2,3-dibromo-1,1-dimethylpropyl ester	1	100	94	30906
392	225	Butyric acid, 2,3-dibromopropyl ester	1	100	86	21398
393	1127	Butyric acid, diester with p-acetoxytoluene-alpha,alpha-diol	0	100	8	32074
394	1128	Butyric acid, diester with p-propionyloxytoluene-alpha,alpha-diol	0	100	8	32075
395	923	Butyric acid, 2-(ethylthio)ethyl ester	0	100	46	31453
396	754	Butyric acid, p-(1,1,3,3-tetramethylbutyl)phenyl ester	0	100	10	30730
397	490	Butyric acid, 2-bromo-, 3-methoxybutyl ester	0	100	62	21970
398	802	Butyric acid, 2-chloro-4-hydroxy-3,3-dimethyl-, lactone	0	100	68	--
399	570	Butyric acid, 2-ethyl-, 2-bromoethyl ester	2	80	97	30221
400	569	Butyric acid, 2-ethyl-, 2-chloroethyl ester	1	100	95	30220
401	1015	Butyric acid, 3-piperonyl-	4	40	96	31627
402	396	Caffeine	0	100	0	20154
--	--	Captan. (See item 493.)	--	--	--	--
403	587	Carbamic acid, propylene ester	0	200	7	--
404	590	Carbamic acid, allyldithio-, allyl ester	5	10	100	--
405	31	Carbamic acid, (2-chloroethyl)ethyl-, 4-nitroso-3,5-xylyl ester	2	80	98	16224
406	38	Carbamic acid, (2-cyanoethyl)ethyldithio-, zinc salt	4	20	97	15102
407	37	Carbamic acid, diethyldithio-, methoxycarbonylmethyl ester	1	100	99	6574
408	1071	Carbamic acid, (dimethoxyphosphinyl)-, isopropyl ester	0	100	5	31943
409	18	Carbamic acid, dimethyl-, o-hydroxyphenyl ester	1	100	93	16188
410	589	Carbamic acid, ethyldithio-, allyl ester	5	10	99	--
411	529	Carbamic acid, ethylenebis[dithio-, bis(p-chlorobenzyl) ester	0	100	25	24962
412	525	Carbamic acid, ethylenebis[dithio-, bis(3,4-dichlorobenzyl) ester	0	100	15	24958

413	522	Carbamic acid, ethylenebis[dithio-, bis(ethoxycarbonylmethyl) ester	0	100	44	24955
414	526	Carbamic acid, ethylenebis[dithio-, bis(2-methylallyl) ester	0	100	29	24959
415	527	Carbamic acid, ethylenebis[dithio-, diacetonyl ester	0	100	33	24960
416	528	Carbamic acid, ethylenebis[dithio-, dibenzyl ester	0	100	41	24961
417	17	Carbamic acid, (2-hydroxyethyl)-, ethyl ester	1	100	98	16136
418	523	Carbamic acid, 2-hydroxytrimethylene-1,3-bis[dithio-, bis(ethoxycarbamoylmethyl) ester	0	100	23	24956
419	524	Carbamic acid, 2-hydroxytrimethylene-1,3-bis[dithio-, bis(methoxycarbamoylmethyl) ester	0	100	32	24957
420	828	Carbamic acid, methyldithio-, 2-hydroxyethyl ester	5	40	99	--
421	1070	Carbamic acid, phosphono-, trimethyl ester	0	100	5	31942
422	946	Carbanilic acid, N-butyldithio-, ammonium salt	0	100	4	31471
423	947	Carbanilic acid, N-butyldithio-, methyl ester	0	100	3	31473
424	959	Carbanilic acid, m-chlorodithio-, ammonium salt	0	100	1	31496
425	958	Carbanilic acid, o-chlorodithio-, ammonium salt	0	100	0	31495
426	960	Carbanilic acid, p-chlorodithio-, ammonium salt	0	100	42	31497
427	978	Carbanilic acid, p-chlorodithio-, methyl ester	6	4	99	31547
428	961	Carbanilic acid, 2,5-dichlorodithio-, ammonium salt	0	100	20	31498
429	849 943	Carbanilic acid, dithio-, ammonium salt	6 3	< 10 20	99 54	31312
430	948	Carbanilic acid, N-ethyldithio-, ammonium salt	0	100	3	31474
431	957	Carbanilic acid, o-methoxydithio-, ammonium salt	0	100	0	31494
432	956	Carbanilic acid, m-methyldithio-, ammonium salt	0	100	6	31493
433	976	Carbanilic acid, m-methyldithio-, methyl ester	6	2	64	31545
434	954	Carbanilic acid, N-methyldithio-, ammonium salt	0	100	2	31491
435	974	Carbanilic acid, N-methyldithio-, methyl ester	0	100	28	31543
436	955	Carbanilic acid, o-methyldithio-, ammonium salt	0	100	57	31492
437	975	Carbanilic acid, o-methyldithio-, methyl ester	6	4	98	31544
438	967	Carbanilic acid, p-methyldithio-, ammonium salt	0	100	72	31505
439	977	Carbanilic acid, p-methyldithio-, methyl ester	6	1	27	31546
440	26	Carbazic acid, ethyl ester	1	100	99	6208
441	2	Carbazic acid, 3-phenyl-, 2-chloroethyl ester	3	40	98	22848
442	824	Carbazic acid, 3-phenylthiono-, ethyl ester	0	100	51	--
443	586	Carbonic acid, cyclic ethylene ester	0	200	48	18365
444	1019	Chrysanthemumamide, N-methyl-N-(4,5-methylenedioxy-2-propylphenyl)-	0	100	12	31665
445	1013	Chrysanthemumamide, N-(2-propyl-4,5-methylenedioxyphenyl)-	0	100	0	31625
446	737	Chrysanthemumic acid, 2-bromoethyl ester	0	100	27	30974
447	843	Chrysanthemumic acid, 6-chloro-alpha-ethylpiperonyl ester	1	100	94	31304
448	902	Chrysanthemumic acid, 2-(2-chloro-4,5-methylenedioxyphenoxy)ethyl ester	0	100	26	31403
449	844	Chrysanthemumic acid, 6-chloro-alpha-methylpiperonyl ester	0	100	14	31305
450	1163	Chrysanthemumic acid, 2,6-diisopropylphenyl ester	0	100	2	32139
451	124	Chrysanthemumic acid, 2,4-dimethylbenzyl ester	1	100	99	21170
452	125	Chrysanthemumic acid, p-ethoxybenzyl ester	1	100	96	21171
453	901	Chrysanthemumic acid, 4-ethoxy-4-methyl-3-oxo-1-piperidino-1-cyclopenten-2-yl ester	0	100	38	31401
454	480	Chrysanthemumic acid, m-ethylbenzyl ester	0	200	63	21906

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
455	916	Chrysanthemumic acid, 2-(ethylthio)ethyl ester.....	0	100	8	20847
456	1155	Chrysanthemumic acid, o-isopropylphenyl ester.....	0	100	10	32131
457	186	Chrysanthemumic acid, 3-(p-isopropylphenyl)-1-methylpropyl ester..	0	100	59	21285
458	187	Chrysanthemumic acid, 3-(p-methoxyphenyl)-1-methylpropyl ester....	0	100	4	21286
459	1166	Chrysanthemumic acid, 5-norbornen-2-ylmethyl ester.....	0	100	0	32149
460	909	Chrysanthemumic acid, thiol-, 6-bromopiperonyl ester.....	0	100	4	31428
461	968	Chrysanthemumic acid, thiol-, 6-chloropiperonyl ester.....	0	100	23	31506
462	931	Chrysanthemumic acid, thiol-, 2,4-dichlorobenzyl ester.....	0	100	4	31461
463	1164	Chrysanthemumic acid, thiol-, 2,5-dimethylbenzyl ester.....	0	100	3	32142
464	1165	Chrysanthemumic acid, thiol-, 3,4-dimethylbenzyl ester.....	0	100	3	32143
465	913	Chrysanthemumic acid, thiol-, phenyl ester.....	0	100	6	19465
466	386	Cinchonidine, sulfate.....	0	100	6	--
467	392	Cinchonine, sulfate.....	0	100	66	--
468	1068	Cinnamic acid, p-hydroxy-, acetate.....	0	100	32	31929
469	1119	Crotonic acid, 2,3-dibromopropyl ester.....	0	100	58	32064
470	765	Cyclobutaneacetic acid, 3-acetyl-2,2-dimethyl-.....	0	100	4	19190
471	454	Cyclobutaneacetic acid, 3-amino-2,2-dimethyl-.....	0	100	15	--
472	762	Cyclobutaneacetic acid, 3-amino-2,2-dimethyl-, cis-.....	0	100	2	--
473	452	Cyclobutaneacetic acid, 3-(1-hydroxyethyl)-2,2-dimethyl-.....	0	100	45	--
474	502	Cyclohexanecarboxamide, 1-bromo-.....	0	100	5	--
475	1016	Cyclohexanecarboxamide, 4(or 5)-chloro-N,N-diethyl-2-methyl-.....	0	100	76	31658
476	1017	Cyclohexanecarboxamide, 4(or 5)-chloro-2-methyl-N,N-dipropyl-.....	0	100	74	31660
477	944	Cyclohexanecarboxylic acid, 4(or 5)-bromo-2-methyl-, ethyl ester..	0	100	52	31322-a
478	945	Cyclohexanecarboxylic acid, 4(or 5)-bromo-2-methyl-, isopropyl ester.....	0	100	49	31323-a
479	1024	Cyclohexanecarboxylic acid, 4(or 5)-chloro-2-methyl-,2-bromoethyl ester.....	0	100	26	31800
480	1085	Cyclohexanecarboxylic acid, 4(or 5)-chloro-2-methyl-, heptyl ester	0	100	26	31950
481	1087	Cyclohexanecarboxylic acid, 4(or 5)-chloro-2-methyl-, 1-methyl-heptyl ester.....	0	100	18	31952
482	1086	Cyclohexanecarboxylic acid, 4(or 5)-chloro-2-methyl-, octyl ester.	0	100	15	31951
483	1088	Cyclohexanecarboxylic acid, 4(or 5)-chloro-2-methyl-, 3-phenyl-propyl ester.....	0	100	19	31953
484	1091	Cyclohexanecarboxylic acid, 4(or 5)-chloro-2-methyl-, tetrahydro-furfuryl ester.....	0	100	33	31956
485	1092	Cyclohexanecarboxylic acid, 4(or 5)-chloro-2-methyl-, p-tolyl ester.....	0	100	4	31957
486	370	Cyclohexanecarboxylic acid, 2-methyl-, 2-chloroethyl ester.....	0	100	58	21687
487	698	Cyclohexanol, formate.....	0	100	25	30436
488	706	Cyclohexanol, 4-tert-butyl-, formate.....	1	100	91	30461
489	707	Cyclohexanol, 2-cyclohexyl-, formate.....	0	100	93	30462

490	708	Cyclohexanol, 4-cyclohexyl-, formate.....	0	100	98	30463
491	699	Cyclohexanol, 2-methyl-, formate.....	0	100	44	30441
492	409	Cyclohexanone, oxime.....	0	100	1	7288
493	770	4-Cyclohexene-1,2-dicarboximide, N-[(trichloromethyl)thio]-.....	0	100	6	26538
494	325	4-Cyclohexene-1,2-dicarboxylic acid, cis-, bis(2-chloroethyl) ester	1	100	95	21672
495	749	2-Cyclohexene-1-hexanoic acid, 2-bromoethyl ester.....	0	100	30	30662
--	--	Cycloheximide. (See item 574.).....	--	--	--	--
496	270	Cyclopentane, dibromochloro-.....	4	20	83	--
497	269	Cyclopentane, trichloro-.....	1	100	89	--
498	859	2-Cyclopenten-1-one, 2,5-dihydroxy-5-methyl-3-morpholino-.....	0	100	6	31318
499	858	2-Cyclopenten-1-one, 2,5-dihydroxy-5-methyl-3-piperidino-.....	0	100	9	31317
500	271	x-Cyclopentenyl alcohol.....	1	100	86	--
501	268	x-Cyclopentenyl ether.....	1	100	90	--
502	929	Cyclopropane, 1-(bromomethyl)-2,2-dimethyl-3-(2-methylpropenyl)-..	0	100	7	31459
503	272	Cyclopropane, 1,1-dichloro-2-methyl-2-vinyl-.....	1	100	90	24702
504	267	Cyclopropane, 1,1-dichloro-2-vinyl-.....	2	80	86	24692
505	311	Cystine, N,N'-bis[(2,4-dichlorophenoxy)acetyl]-, L-.....	1	100	88	--
506	346	Cystine, N,N'-bis[2-(2,4,5-trichlorophenoxy)propionyl]-, D-.....	0	100	34	--
507	347	Cystine, N,N'-bis[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-.....	0	100	70	--
508	345	Cystine, N,N'-bis[2-(2,4,5-trichlorophenoxy)propionyl]-, L-.....	0	100	50	--
509	701	Decyl alcohol, formate.....	5	10	93	30443
--	--	Dibrom. (See item 738.).....	--	--	--	--
510	689	Dibutylamine, N-(methylsulfinyl)-.....	0	100	19	25032
511	537	m-Dioxane.....	0	100	33	1235
512	908	m-Dioxane, 2-(2-bromo-4,5-methylenedioxyphenyl)-.....	0	100	8	31426
513	891	m-Dioxane, 2-(2-bromo-4,5-methylenedioxyphenyl)-5,5-dimethyl-.....	0	100	10	31393
514	889	m-Dioxane, 2-(2-bromo-4,5-methylenedioxyphenyl)-5-ethyl-4-propyl-.	0	100	5	31390
515	885	m-Dioxane, 2-(2-bromo-4,5-methylenedioxyphenyl)-4-methyl-.....	0	100	2	31381
516	811	m-Dioxane, 5-butyl-2-(o-chlorophenyl)-5-ethyl-.....	0	100	6	31156
517	971	m-Dioxane, 5-butyl-2-(p-chlorophenyl)-5-ethyl-.....	0	100	49	31525
518	867	m-Dioxane, 2-(2-chloro-4,5-methylenedioxyphenyl)-4-methyl-.....	0	100	0	31365
519	1022	m-Dioxane, 2-(chloromethyl)-5-ethyl-5-methyl-.....	0	100	10	31687
520	965	m-Dioxane, 2-(chloromethyl)-5-ethyl-4-propyl-.....	0	100	53	22876-a
521	973	m-Dioxane, 2-(chloromethyl)-4,4,6-trimethyl-.....	0	100	49	31531
522	972	m-Dioxane, 2-(chloromethyl)-4,5,5-trimethyl-.....	0	100	49	31530
523	907	m-Dioxane, 2-(p-chlorophenyl)-5,5-diethyl-.....	0	100	8	31420
524	969	m-Dioxane, 2-(o-chlorophenyl)-4,5,5-trimethyl-.....	0	100	63	31520
525	970	m-Dioxane, 2-(p-chlorophenyl)-4,5,5-trimethyl-.....	0	100	67	31521
526	1093	1,4-Dioxaspiro[4.5]decane, 2-(chloromethyl)-.....	0	100	20	31959
527	1146	1,4-Dioxaspiro[4.5]decane, 2-(chloromethyl)-8-methyl-.....	0	100	88	32106
528	1094	1,4-Dioxaspiro[4.4]nonane, 2-(chloromethyl)-.....	0	100	17	31960
529	1147	1,3-Dioxolane, 2-benzyl-4-(chloromethyl)-.....	0	100	97	32107
530	1096	1,3-Dioxolane, 2-benzyl-4-(chloromethyl)-2-methyl-.....	0	100	64	31962
531	1151	1,3-Dioxolane, 2,4-bis(chloromethyl)-.....	0	100	12	32112
532	868	1,3-Dioxolane, 2-(2-bromo-4,5-methylenedioxyphenyl)-.....	0	100	26	31366
533	887	1,3-Dioxolane, 2-(2-bromo-4,5-methylenedioxyphenyl)-4,5-dimethyl-.	0	100	84	31383
534	866	1,3-Dioxolane, 2-(2-bromo-4,5-methylenedioxyphenyl)-4-methyl-.....	0	100	60	31363
535	1089	1,3-Dioxolane, 4-(chloromethyl)-2-(o-chlorophenyl)-.....	0	100	45	31954

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
536	1090	1,3-Dioxolane, 4-(chloromethyl)-2-(p-chlorophenyl)-	3	40	99	31955
537	864	1,3-Dioxolane, 2-(2-chloro-4,5-methylenedioxyphenyl)-4-methyl-	0	100	43	31357
538	1098	1,3-Dioxolane, 4-(chloromethyl)-2-ethyl-2-phenyl-	0	100	45	31964
539	1072	1,3-Dioxolane, 4-(chloromethyl)-2-hexyl-	4	40	99	9398-a
540	1149	1,3-Dioxolane, 4-(chloromethyl)-2-hexyl-2-methyl-	0	100	72	32109
541	1095	1,3-Dioxolane, 4-(chloromethyl)-2-(p-methoxyphenyl)-	0	100	3	31961
542	1097	1,3-Dioxolane, 4-(chloromethyl)-2-(alpha-methylbenzyl)-	0	100	73	31963
543	1150	1,3-Dioxolane, 4-(chloromethyl)-2-methyl-2-pentyl-	0	100	73	32110
544	1126	1,3-Dioxolane, 4-(chloromethyl)-2-methyl-2-propyl-	0	100	7	32073
545	1125	1,3-Dioxolane, 4-(chloromethyl)-2-nonyl-	0	100	98	32071
546	1082	1,3-Dioxolane, 4-(chloromethyl)-2-octyl-	5	40	99	31944
547	1148	1,3-Dioxolane, 4-(chloromethyl)-2-phenethyl-	0	100	97	32108
548	1084	1,3-Dioxolane, 4-(chloromethyl)-2-phenyl-	0	100	35	31949
549	1083	1,3-Dioxolane, 4-(chloromethyl)-2-styryl-	0	100	86	31945
550	966	1,3-Dioxolane, 4-methyl-2-(1-naphthyl)-	0	100	47	31504
551	1167	1,3-Dioxolane-2-acetic acid, 4-(chloromethyl)-2-methyl-, ethyl ester	0	100	2	32150
552	1054	1,3-Dioxolane-4-butanol, 2-(o-chlorophenyl)-	0	100	38	31888
553	1025	1,3-Dioxolane-4-butanol, 2-(p-chlorophenyl)-	0	100	59	31820
--	--	Di-Syston. (See item 741.)	--	--	--	--
554	1202	1,2-Dithiolo[4,3-b]pyrrol-5(4H)-one, 6-acetamido-4-methyl-	0	100	35	--
555	830	1-Dodecanethiol	0	100	10	7577
556	389	Ephedrine, sulfate	0	100	5	--
557	495	Erythrosine	0	100	3	--
558	369	Ethane, 1,1,2,2-tetrakis(methyldithio)-	5	10	100	24805
559	703	Ethanol, 2-butoxy-, formate	0	100	28	30447
560	697	Ethanol, 2-(2-butoxyethoxy)-, formate	0	100	11	30435
561	921	Ethanol, 2-(2-chloro-4,5-methylenedioxyphenoxy)-	0	100	7	31449
562	900	Ethanol, 2-(2-chloro-4,5-methylenedioxyphenoxy)-, acetate	0	100	40	31399
563	904	Ethanol, (3,4-methylenedioxyphenoxy)-, acetate	0	100	44	31407
564	683	Ethanol, 2-(octylsulfinyl)-	0	100	12	25026
565	511	Ether, benzyl phenyl	5	10	100	--
566	817	Ether, bis(2-chloroethyl)	0	100	5	4504
567	986	Ether, 2,3-dibromopropyl methyl	0	100	27	--
568	825	Ethylene sulfite	0	100	2	18461
569	710	Fenchyl alcohol, formate	0	100	62	30489
570	709	Furfuryl alcohol, tetrahydro-, formate	0	100	0	30486
571	563	Gibberellic acid	0	100	15	--
572	1058	Glutamic acid, N-[p-{[(2,4-diamino-6-pteridinyl)methyl]methylamino} benzoyl]-	0	100	5	25299-a
573	307	Glutamic acid, N-[(2,4-dichlorophenoxy)acetyl]-, L-	0	100	73	--

574	1061	Glutarimide, 3-[2-(3,5-dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-	0	100	6	15541
575	1076	Glutarimide, 3-[2-(3,5-dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-, acetate	0	100	30	26084-a
576	1078	Glutarimide, 3-[2-(3,5-dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-, acetoacetate	0	100	13	26259
577	1080	Glutarimide, 3-[2-(3,5-dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-, 2-methylhydrazone	0	100	16	26261
578	1077	Glutarimide, 3-[2-(3,5-dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-, 2-oxime	0	100	35	26258
579	1007 1079	Glutarimide, 3-[2-(3,5-dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-, 2-semicarbazide-	1 0	100 100	96 15	26260
580	1081	Glutarimide, 3-[2-(3,5-dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-, 2-thiosemicarbazide	0	100	22	26262
581	294	Glycine, N-[(p-chlorophenoxy)acetyl]-	0	100	41	--
582	286	Glycine, N-[(4-chloro-o-tolyloxy)acetyl]-	0	100	73	--
583	327	Glycine, N-{N-[(2,4-dichlorophenoxy)acetyl]glycyl}-	1	100	86	--
584	1153	1,1-Heptanediol, diacetate	0	100	23	32114
585	759	Heptanoic acid, 2-bromoethyl ester	3	40	88	30741
586	758	Heptanoic acid, 2-chloroethyl ester	2	80	98	30740
587	797	Heptanoic acid, 2-cyanoethyl ester	0	100	68	--
588	795	Heptanoic acid, 2-hydroxy-3-methoxypropyl ester	0	100	67	--
589	92	Hexane, 1,6-dibromo-	5	10	99	11008
590	826	Hexane, 1,6-dibromo-, urea adduct	0	100	9	--
591	224	Hexanoic acid, 2,3-dibromopropyl ester	0	100	57	21397
592	210	Hexanoic acid, 2-bromo-, benzyl ester	0	100	38	21373
593	218	Hexanoic acid, 2-bromo-, 2-bromoethyl ester	2	80	99	21391
594	231	Hexanoic acid, 2-bromo-, 2-butoxyethyl ester	1	100	95	21389
595	208	Hexanoic acid, 2-bromo-, butyl ester	1	100	79	21356
596	209	Hexanoic acid, 2-bromo-, 2-chloroethyl ester	0	100	39	21357
597	211	Hexanoic acid, 2-bromo-, cyclohexyl ester	0	100	48	21376
598	491	Hexanoic acid, 2-bromo-, 3-methoxybutyl ester	0	100	72	21971
599	212	Hexanoic acid, 2-bromo-, phenethyl ester	1	100	81	21377
600	219	Hexanoic acid, 2-bromo-, 3-phenylpropyl ester	1	100	93	21392
601	207	Hexanoic acid, 2-bromo-, propyl ester	0	100	67	21355
602	232	Hexanoic acid, 2-bromo-, tetrahydrofurfuryl ester	1	100	95	21390
603	376	Homatropine, hydrobromide	0	100	4	--
604	379	Homatropine, hydrochloride	0	100	18	--
605	390	Hydrastine, hydrochloride	0	100	40	--
606	992	Hydrocinnamic acid, alpha,beta-dibromo-o-chloro-, ethyl ester	0	100	65	--
607	372	Hygromycin	0	100	6	--
608	387	Hyoscyamine	0	100	5	--
609	503	Iodonium compound, bis(2-bromo-4-chlorophenyl)----chloride	4	20	82	--
610	504	Iodonium compound, bis(p-bromophenyl)----chloride	3	40	99	17460
611	509	Iodonium compound, bis[p-(carboxymethyl)phenyl]----chloride, disodium salt	0	100	66	--
612	508	Iodonium compound, bis(p-chlorophenyl)----chloride	3	40	88	17086
613	510	Iodonium compound, bis(2,4-dichlorophenyl)----chloride	3	40	94	17454
614	505	Iodonium compound, bis(3,4-dichlorophenyl)----chloride	3	40	97	17457

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
615	507	Iodonium compound, bis(x-fluorophenyl)----sulfate	1	100	92	--
616	717	Isobutyric acid, 2-(allyloxy)-1-(chloromethyl)ethyl ester	0	100	20	30497
617	259	Isobutyric acid, p-bromophenyl ester	2	80	99	21548
618	321	Isobutyric acid, 4-tert-butyl-2-chlorophenyl ester	1	100	81	21665
619	266	Isobutyric acid, p-tert-butylphenyl ester	1	100	79	21588
620	257	Isobutyric acid, o-chlorophenyl ester	0	100	62	21546
621	258	Isobutyric acid, p-chlorophenyl ester	1	100	98	21547
622	735	Isobutyric acid, 2,3-dibromo-1,1-dimethylpropyl ester	3	40	96	30965
623	1117	Isobutyric acid, 2,3-dibromopropyl ester	0	100	57	32062
624	260	Isobutyric acid, 2,4-dichlorophenyl ester	0	100	60	21549
625	264	Isobutyric acid, o-isopropylphenyl ester	0	100	33	21586
626	265	Isobutyric acid, p-isopropylphenyl ester	1	100	95	21587
627	719	Isobutyric acid, 2,3,4,6-tetrachlorophenyl ester	0	100	41	30513
628	755	Isobutyric acid, p-(1,1,3,3-tetramethylbutyl)phenyl ester	0	100	10	30731
629	718	Isobutyric acid, thymyl ester	0	100	22	30503
630	255	Isobutyric acid, o-tolyl ester	0	100	33	21544
631	256	Isobutyric acid, p-tolyl ester	1	100	84	21545
632	262	Isobutyric acid, 2,4,5-trichlorophenyl ester	0	100	73	21580
633	317	Isoleucine, N-[(2,4-dichlorophenoxy)acetyl]-, D-	0	100	54	--
634	329	Isoleucine, N-[(2,4-dichlorophenoxy)acetyl]-, DL-	0	100	62	--
635	315	Isoleucine, N-[(2,4-dichlorophenoxy)acetyl]-, L-	0	100	40	--
636	588	Isothiocyanic acid, o-chlorophenyl ester	5	10	100	--
637	745	Isovaleric acid, 2-bromoethyl ester	1	100	88	30595
638	949	Isovaleric acid, p-bromophenyl ester	4	20	98	31477
639	744	Isovaleric acid, 2-chloroethyl ester	0	100	30	30594
640	381	Jervine	0	100	35	--
--	--	Kepone. (See item 673.)	--	--	--	--
641	801	Lactic acid, 2,3-dibromopropyl ester (crude)	0	100	69	--
642	796	Lactic acid, methyl ester, heptanoate	1	100	87	--
643	1103	Lauric acid, 2-bromoethyl ester	0	100	68	31999
644	299	Leucine, N-[(p-chlorophenoxy)acetyl]-, DL-	0	100	50	--
645	282	Leucine, N-[(4-chloro-o-tolyloxy)acetyl]-, D-	0	100	74	--
646	279	Leucine, N-[(4-chloro-o-tolyloxy)acetyl]-, DL-	4	10	44	--
647	292	Leucine, N-[(4-chloro-o-tolyloxy)acetyl]-, L-	0	100	56	--
648	328	Leucine, N-[(2,4-dichlorophenoxy)acetyl]-, DL-	0	100	16	--
649	300	Leucine, N-[(2,4-dichlorophenoxy)acetyl]-, L-	0	100	44	--
650	52	Leucine, N-[2-(2,4-dichlorophenoxy)propionyl]-, D-	4	20	92	--
651	998	Leucine, N-(2,2-dichloropropionyl)-, D-	0	100	26	--
652	1000	Leucine, N-(2,2-dichloropropionyl)-, DL-	0	100	30	--
653	999	Leucine, N-(2,2-dichloropropionyl)-, L-	0	100	9	--
654	876	Leucine, N-(2,3,6-trichlorobenzoyl)-, D-	0	100	10	--

655	877	Leucine, N-(2,3,6-trichlorobenzoyl)-, DL-	0	100	11	--
656	875	Leucine, N-(2,3,6-trichlorobenzoyl)-, L-	0	100	5	--
657	109	Leucine, N-[(2,4,5-trichlorophenoxy)acetyl]-, D-	1	100	99	--
658	106	Leucine, N-[(2,4,5-trichlorophenoxy)acetyl]-, DL-	3	40	87	--
659	115	Leucine, N-[(2,4,5-trichlorophenoxy)acetyl]-, L-	2	40	49	--
660	349	Leucine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, D-	0	100	54	--
661	350	Leucine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-	0	100	75	--
662	348	Leucine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, L-	1	100	78	--
663	1067	Levulinic acid, 2-chloroethyl ester	0	100	48	31928
664	306	Lysine, N^2,N^6-bis[(2,4-dichlorophenoxy)acetyl]-, DL-	0	100	55	--
665	314	Lysine, N^2,N^6-bis[(2,4-dichlorophenoxy)acetyl]-, L-	0	100	35	--
666	193	Mandelonitrile, 2,4-dimethyl-	1	100	98	21298
667	556	Methacrylic acid, methyl ester	0	100	52	24946
668	725	Methane, bromotrichloro-	0	80	12	--
669	366	Methane, (methyldithio)bis(methylthio)-	5	10	100	24802
670	368	Methane, (methyldithio)bis(methyltrithio)-	5	10	100	24804
671	367	Methane, tris(methyldithio)-	5	10	100	24803
672	1231	1,3,4-Metheno-2H-cyclobuta[cd]pentalene, dodecachloroöctahydro-	0	100	18	25719
673	979 1046	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, decachloroöctahydro-	1 0	100 100	86 11	16391
674	320	Methionine, N-[(4-chloro-o-tolyloxy)acetyl]-, D-	0	100	24	--
675	280	Methionine, N-[(4-chloro-o-tolyloxy)acetyl]-, DL-	0	100	30	--
676	333	Methionine, N-[(2,4-dichlorophenoxy)acetyl]-, D-	0	100	48	--
677	332	Methionine, N-[(2,4-dichlorophenoxy)acetyl]-, DL-	0	100	48	--
678	1001	Methionine, N-(2,2-dichloropropionyl)-, D-	0	100	17	--
679	1003	Methionine, N-(2,2-dichloropropionyl)-, DL-	0	100	18	--
680	1002	Methionine, N-(2,2-dichloropropionyl)-, L-	0	100	25	--
681	879	Methionine, N-(2,3,6-trichlorobenzoyl)-, D-	0	100	2	--
682	880	Methionine, N-(2,3,6-trichlorobenzoyl)-, DL-	0	100	3	--
683	878	Methionine, N-(2,3,6-trichlorobenzoyl)-, L-	0	100	0	--
684	111	Methionine, N-[(2,4,5-trichlorophenoxy)acetyl]-, D-	3	40	94	--
685	105	Methionine, N-[(2,4,5-trichlorophenoxy)acetyl]-, DL-	1	100	76	--
686	114	Methionine, N-[(2,4,5-trichlorophenoxy)acetyl]-, L-	1	80	15	--
687	355	Methionine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, D-	0	100	18	--
688	356	Methionine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-	0	100	33	--
689	354	Methionine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, L-	0	100	44	--
--	--	Methotrexate. (See item 572.)	--	--	--	--
690	536	Methyl sulfoxide	0	100	29	26477
691	1020	Methyl trisulfide	6	8	98	26172
692	903	Morpholinium compound, 4-(4-ethoxy-2-hydroxy-4-methyl-3-oxo-1-cyclopenten-1-yl)----chloride	0	100	25	31405
693	893	Morpholinium compound, 4-(2-hydroxy-4-methylene-3-oxo-1-cyclopenten-1-yl)----chloride	0	100	11	31395
--	--	Mucochloric anhydride. (See item 226.)	--	--	--	--
694	1154	1-Naphthalenemethanediol, diacetate	0	100	3	32115
695	567	2-Naphthoic acid, 3-(allyloxy)-, methyl ester	0	100	63	30207
696	402	Nicotine, tartrate	0	100	21	--
697	994	Nonanamide	2	80	93	5052

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
698	1035	Nonanamide, N-(2-cyanoethyl)-	0	100	22	--
699	217 993	Nonanoic acid	3 1	40 100	93 88	4164
700	216	Nonanoic acid (35 percent)	0	100	43	--
701	215	Nonanoic acid, ammonium salt	0	100	23	--
702	798	Nonanoic acid, 1-cyanoethyl ester	1	100	81	--
703	799	Nonanoic acid, 2-cyanoethyl ester	1	100	96	26107
704	803	Nonanoic acid, (dimethylcarbamoyl)methyl ester	1	100	85	--
705	990	Nonanoic acid, hydrazide	0	100	69	26105
706	942	Nonanoic acid, 2-sulfo-, sodium salt	0	100	5	--
707	991	Nonanoin, tri-	0	100	30	22998
708	855	5-Norbornene-2,3-dicarboximide, 1,4,5,6,7,7-hexachloro-N-(ethylmercuri)-	2	80	99	--
709	952	5-Norbornene-2,3-dicarboxylic acid, 1,4,5,6,7,7-hexachloro-, dibutyl ester	0	100	5	31485
710	953	5-Norbornene-2,3-dicarboxylic acid, 1,4,5,6,7,7-hexachloro-, diethyl ester	0	100	4	31488
711	951	5-Norbornene-2,3-dicarboxylic acid, 1,4,5,6,7,7-hexachloro-, dipropyl ester	0	100	2	31484
712	939	Octadecyl sulfate, compound with DL-alanine	0	100	0	--
713	938	Octadecyl sulfate, compound with glycine	0	100	2	--
714	940	Octadecyl sulfate, compound with DL-leucine	0	100	6	--
715	941	Octadecyl sulfate, compound with L-methionine	0	100	8	--
716	766	Octanoic acid, 2-bromoethyl ester	3	40	98	31002
717	775	Octanoic acid, p-bromophenyl ester	1	100	86	31055
718	740	Octanoic acid, 2-chloroethyl ester	1	100	81	30985
719	772	Octanoic acid, o-chlorophenyl ester	0	100	57	31052
720	774	Octanoic acid, p-chlorophenyl ester	0	100	69	31054
721	702	1-Octanol, 2-butyl-, formate	0	100	24	30444
722	713	2-Octanol, formate	2	40	51	30493
--	--	Parathion. (See item 742.)	--	--	--	--
--	--	Pelargonic acid. (See item 699.)	--	--	--	--
723	829	Pentane, 1,5-dibromo-, urea adduct	0	100	2	--
724	704	1,5-Pentanediol, diformate	0	100	39	6407
725	688	Percarbamic acid, dimethyltrithio-, tert-butyl ester	1	100	91	25031
--	--	Phaltan. (See item 758.)	--	--	--	--
726	160	Phenol, 2-allyl-6-methoxy-, acetate	4	20	87	21138
727	848	Phenol, 2-chloro-4,5-methylenedioxy-, acetate	0	100	29	31311
728	415	Phenol, 2-chloro-4-nitro-	1	100	82	--
729	417	Phenol, 4-chloro-2-phenyl-	1	100	92	9046
730	751	Phenol, p-(1,1,3,3-tetramethylbutyl)-, acetate	0	100	21	30726

731	261	Phenyl ether	1	100	96	749
732	791 964	Phenyl sulfide	0 1	100 100	23 87	10564
--	--	Phosphamidon. (See item 737.)	--	--	--	--
733	498	Phosphine, tris(2,2,4-trimethylpentyl)-	0	100	40	--
734	1059	Phosphine sulfide, bis(1-aziridinyl)morpholino-	0	100	3	25301
735	1055	Phosphine sulfide, tris(1-aziridinyl)-	0	100	5	25295
736	499	Phosphonic dichloride, (chloromethyl)-	1	100	96	--
737	724	Phosphoric acid, 2-chloro-2-diethylcarbamoyl-1-methylvinyl dimethyl ester	3	20	16	25515
738	812	Phosphoric acid, 1,2-dibromo-2,2-dichloroethyl dimethyl ester	2	80	84	24988
739	166	Phosphorodithioic acid, S-2-benzothiazolyl O,O-diethyl ester	5	10	82	21198
740	10	Phosphorodithioic acid, S-[(p-chlorophenylthio)methyl] O,O diethyl ester	3	40	91	23708
741	161	Phosphorodithioic acid, O,O-diethyl S-2-(ethylthio)ethyl ester	5	10	94	23437
742	821	Phosphorothioic acid, O,O-diethyl O-p-nitrophenyl ester	2	40	65	15108
743	852	Phosphorothioic acid, O,O-diethyl O-(m-pentadecylphenyl)ester	0	100	4	25597
744	987	Phosphorothioic acid, O,O,O-trimethyl ester	0	100	18	--
745	548	Phthalanilic acid	0	100	40	31209
746	546	Phthalanilic acid, 4'-acetyl-	0	100	67	--
747	549	Phthalanilic acid, 4'-tert-butyl-	0	100	37	--
748	544	Phthalanilic acid, 4'-carboxy-3'-hydroxy-	0	100	36	--
749	554	Phthalanilic acid, 2',5'-dimethoxy-	0	100	45	--
750	550	Phthalanilic acid, 2',5'-dimethyl-	0	100	38	--
751	553	Phthalanilic acid, 2'-hydroxy-	0	100	53	--
752	552	Phthalanilic acid, 4'-hydroxy-	0	100	53	23472
753	547	Phthalanilic acid, 5'-isopropyl-2'-methyl-	0	100	43	23482
754	551	Phthalanilic acid, 2'-methoxy-5'-methyl-	0	100	69	--
755	543	Phthalanilic acid, 2'-methyl-	0	100	22	--
756	542	Phthalanilic acid, 3'-methyl-	0	100	16	23601
757	545	Phthalanilic acid, 2'-phenyl-	0	100	37	--
758	854	Phthalimide, N-[(trichloromethyl)thio]-	0	100	28	26539
759	397	Physostigmine, salicylate	0	100	7	17582
760	382	Picrotoxin	0	100	10	17689
761	399	Pilocarpine, hydrochloride	0	100	41	--
--	--	Pinolic acid. (See item 473.)	--	--	--	--
--	--	Pinonic acid. (See item 470.)	--	--	--	--
762	1215	Piperazine, (aminoethyl)-	0	100	27	--
763	79	Piperazine, 1-(diethylcarbamoyl)-4-methyl-, citrate	1	100	89	16922
764	814	Piperazine, 2,5-dimethyl-	0	100	12	--
765	53	Piperazine, 1,4-dinitro-	1	100	95	500
766	1193	Piperazine, 1-phenyl-	0	100	44	26332
767	57	1,4-Piperazinediethanol	1	100	86	3876
768	58	1,4-Piperazinedisulfonamide, N,N,N',N'-tetramethyl-	3	40	85	4826
769	583	Piperidine, 1-(2,3-dichloropropionyl)-	0	150	42	--
770	892	Piperidinium compound, 1-(2-hydroxy-4-methylene-3-oxo-1-cyclopenten-1-yl)---chloride	0	100	14	31394
771	1008	Piperonal, oxime	0	100	21	22262

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
772	75	Piperonal, semicarbazone	4	20	98	15221
773	158	Piperonal, 6-propenyl-	2	80	95	20988
774	60	Piperonyl alcohol	1	100	87	5702
775	61	Piperonyl alcohol, acetate	2	40	61	5703
776	59	Piperonyl alcohol, alpha-allyl-, acetate	3	20	38	5004
777	85	Piperonyl alcohol, alpha-allyl-, benzoate	3	40	96	20084
778	89	Piperonyl alcohol, alpha-tert-butyl-	1	80	52	20293
779	88	Piperonyl alcohol, alpha-ethyl-, acetate	1	100	98	20275
780	90	Piperonyl alcohol, alpha-isopropyl-	1	80	75	20338
781	91	Piperonyl alcohol, alpha-isopropyl-, acetate	1	100	90	20339
782	87	Piperonyl alcohol, alpha-methyl-, acetate	0	100	75	20093
783	86	Piperonyl alcohol, alpha-propyl-	1	100	92	20085
784	78	Piperonyl alcohol, 6-propyl-	1	100	99	16012
785	77	Piperonyl alcohol, 6-propyl-, acetate	3	40	85	16008
786	70	Piperonyl alcohol, 6-propyl-, benzoate	3	40	88	14719
787	71	Piperonyl alcohol, 6-propyl-, formate	3	20	74	14732
788	55	Piperonylamide, N,N-diethyl-	2	80	97	813
--	--	Piperonyl butoxide. (See item 956.)	--	--	--	--
789	56	Piperonyl cyclonene	1	100	99	2818
790	64	Piperonylic acid	3	40	83	5972
791	63	Piperonylic acid, propyl ester	3	40	86	5967
792	335	Proline, 1-[(2,4-dichlorophenoxy)acetyl]-, DL-	0	100	26	--
793	334	Proline, 1-[(2,4-dichlorophenoxy)acetyl]-, L-	0	100	72	--
794	988	Propane, 1,2-dibromo-3-chloro-	6	100	98	--
795	827	Propane, 1,2-dibromo-3-chloro-, thiourea adduct	0	100	0	--
796	1157	1,1-Propanediol, 2-phenyl-, diacetate	0	100	36	32134
797	711	1,3-Propanediol, 2,2-dimethyl-, diformate	0	100	20	30490
798	413	1,3-Propanediol, 2-(hydroxymethyl)-2-nitro-	0	100	19	2259
799	411	1,3-Propanediol, 2-methyl-2-nitro-	0	100	12	4503
800	1069	1-Propanol, 1,2-dibromo-	0	100	75	--
801	1116	1-Propanol, 2,3-dibromo-, acetate	0	100	37	32061
802	1120	1-Propanol, 2,3-dibromo-, benzoate	0	100	21	32065
803	1118	1-Propanol, 2,3-dibromo-, formate	0	100	15	32063
804	729	1-Propanol, 2,3-dibromo-1,1-dimethyl-, acetate	1	100	99	30903
805	714	2-Propanol, 1-(allyloxy)-3-chloro-, acetate	0	100	15	30494
806	712	2-Propanol, 1-(allyloxy)-3-chloro-, formate	0	100	3	30491
807	690	2-Propanol, 1-(o-chlorophenoxy)-, formate	0	100	45	30413
808	686	2-Propanol, 1-(octylthio)-	5	10	100	25029
809	497	x-Propanol, trichloronitro-	1	100	91	--
810	677	Propionaldehyde, 2,2,3-trichloro-	0	100	30	25036
811	500	Propionamide, x-bromo-2-methyl-	0	100	7	--

812	572	Propionamide, 2,3-dichloro-	1	100	86	4121
813	579	Propionamide, 2,3-dichloro-N-cyclohexyl-	0	150	35	--
814	584	Propionamide, 2,3-dichloro-N,N-diethyl-	0	150	21	--
815	582	Propionamide, 2,3-dichloro-N,N-diphenyl-	0	150	33	--
816	580	Propionamide, 2,3-dichloro-N-ethyl-	0	150	29	--
817	571	Propionamide, 2,3-dichloro-N-(2-naphthyl)-	0	150	31	--
818	578	Propionanilide, 4'-bromo-2,3-dichloro-	3	40	97	--
819	242	Propionanilide, 2,3-dichloro-	3	40	99	--
820	886	Propionanilide, 3',4'-dichloro-	0	100	41	31382
821	575	Propionanilide, 2,3-dichloro-4'-methyl-	2	80	99	--
822	906	Propionanilide, 3',4'-dichloro-2-methyl-	0	100	6	31409
823	585	Propionanilide, 2,3-dichloro-4'-phenyl-	0	150	37	--
824	574	Propionanilide, 2,3-dichloro-4'-(phenylazo)-	1	100	91	--
825	576	Propionanilide, 2,2',3,4',6'-pentachloro-	1	100	99	--
826	573 788	Propionanilide, 2,2',3,4'-tetrachloro-	6 6	2.5 <10	79 99	-- --
827	243	Propionanilide, 2,2',3-trichloro-	4	20	99	--
828	241	Propionanilide, 2,3,3'-trichloro-	3	40	99	--
829	94	Propionanilide, 2,3,4'-trichloro-	5	10	99	--
830	577	p-Propionanisidide, 2,3-dichloro-	1	100	94	--
831	715	Propionic acid, 2-(allyloxy)-1-(chloromethyl)ethyl ester	0	100	16	30495
832	730	Propionic acid, 2,3-dibromo-1,1-dimethylpropyl ester	2	80	99	30905
833	220	Propionic acid, 2,3-dibromopropyl ester	2	80	89	21393
834	1115	Propionic acid, diester with p-acetoxytoluene-alpha,alpha-diol	0	100	1	32052
835	1152	Propionic acid, diester with p-isopropyltoluene-alpha,alpha-diol	0	100	4	32113
836	1159	Propionic acid, diester with 3,4-methylenedioxytoluene-alpha, alpha-diol	0	100	0	32136
837	1156	Propionic acid, diester with 1-naphthalenemethanediol	0	100	0	32132
838	1112	Propionic acid, m-(alpha,alpha-dihydroxytolyl) ester, diacetate	0	100	14	32043
839	1110	Propionic acid, p-(alpha,alpha-dihydroxytolyl) ester, diacetate	1	100	41	32042
840	922	Propionic acid, 2-(ethylthio)ethyl ester	0	100	23	31452
841	1063	Propionic acid, 2-methoxy-4-(3-oxobutyl)phenyl ester	0	100	11	31898
842	752	Propionic acid, p-(1,1,3,3-tetramethylbutyl)phenyl ester	0	100	5	30727
843	1158	Propionic acid, triester with 4-hydroxy-3-methoxytoluene-alpha, alpha-diol	0	100	5	32135
844	1114	Propionic acid, triester with m-hydroxytoluene-alpha,alpha-diol	0	100	18	32051
845	1113	Propionic acid, triester with p-hydroxytoluene-alpha,alpha-diol	0	100	8	32044
846	165	Propionic acid, 2-bromo-, benzyl ester	3	40	98	21197
847	177	Propionic acid, 2-bromo-, 2-bromoethyl ester	1	100	95	21242
848	174	Propionic acid, 2-bromo-, 2-(2-butoxyethoxy)ethyl ester	0	100	64	21239
849	173	Propionic acid, 2-bromo-, 2-butoxyethyl ester	0	100	23	21238
850	184	Propionic acid, 2-bromo-, 2-sec-butylcyclohexyl ester	1	100	84	21278
851	188	Propionic acid, 2-bromo-, 4-sec-butylcyclohexyl ester	0	100	17	21287
852	194	Propionic acid, 2-bromo-, 2-(p-tert-butylphenoxy)ethyl ester	0	100	6	21299
853	176	Propionic acid, 2-bromo-, 2-chloroethyl ester	1	100	97	21241
854	178	Propionic acid, 2-bromo-, 2-chloro-1-methylethyl ester	1	100	81	21243
855	180	Propionic acid, 2-bromo-, p-chlorophenethyl ester	1	100	99	21248
856	198	Propionic acid, 2-bromo-, 2-(o-chlorophenoxy)-1-methylethyl ester	0	100	14	21307

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
857	203	Propionic acid, 2-bromo-, 2-(p-chlorophenoxy)-1-methylethyl ester.	1	100	85	21332
858	167	Propionic acid, 2-bromo-, cyclohexyl ester.....	4	20	87	21199
859	171	Propionic acid, 2-bromo-, cyclopentyl ester.....	1	100	99	21236
860	222	Propionic acid, 2-bromo-, 2,3-dibromopropyl ester.....	1	100	78	21395
861	191	Propionic acid, 2-bromo-, diester with 1,4-butanediol.....	0	100	42	21295
862	179	Propionic acid, 2-bromo-, diester with ethylene glycol.....	0	100	70	21246
863	196	Propionic acid, 2-bromo-, diester with 1,5-pentanediol.....	0	100	49	21305
864	183	Propionic acid, 2-bromo-, 2-ethylbutyl ester.....	1	100	98	21277
865	197	Propionic acid, 2-bromo-, 4-ethyl-1-methyloctyl ester.....	0	100	7	21306
866	172	Propionic acid, 2-bromo-, 1-ethylpentyl ester.....	0	100	30	21237
867	169	Propionic acid, 2-bromo-, hexyl ester.....	1	100	92	21207
868	486	Propionic acid, 2-bromo-, 3-methoxybutyl ester.....	1	100	77	21927
869	170	Propionic acid, 2-bromo-, 2-methoxyethyl ester.....	0	100	56	21208
870	190	Propionic acid, 2-bromo-, 2-methoxy-1-methylethyl ester.....	1	100	98	21294
871	182	Propionic acid, 2-bromo-, 4-methylcyclohexyl ester.....	1	100	91	21260
872	189	Propionic acid, 2-bromo-, octyl ester.....	0	100	10	21288
873	175	Propionic acid, 2-bromo-, 2-phenoxyethyl ester.....	0	100	68	21240
874	168	Propionic acid, 2-bromo-, tetrahydrofurfuryl ester.....	0	100	25	21206
875	487	Propionic acid, 2-chloro-, 3-methoxybutyl ester.....	0	100	29	21929
876	163	Propionic acid, 2-chloro-, tetrahydropyran-2-ylmethyl ester.....	1	100	94	21192
877	488	Propionic acid, 3-chloro-, 3-methoxybutyl ester.....	0	100	29	21930
878	164	Propionic acid, 3-chloro-, tetrahydropyran-2-ylmethyl ester.....	0	100	31	21193
879	790	Propionic acid, 2,3-dichloro-, octyl ester.....	0	100	20	--
880	254 810	Propionic acid, 2,3-dichloro-2-methyl-, sodium salt.....	0 0	100 100	70 3	25273
881	428	Propionic acid, 2-(2,4-dichlorophenoxy)-, 2-(2,4-dichlorophenoxy)-ethyl ester.....	0	100	24	--
882	410	Propionic acid, 3-nitro-.....	1	100	85	--
883	119	Propionic acid, 2-(2,4,5-trichlorophenoxy)-, d-.....	1	100	93	25319
884	118	Propionic acid, 2-(2,4,5-trichlorophenoxy)-, dl-.....	3	40	84	--
885	117	Propionic acid, 2-(2,4,5-trichlorophenoxy)-, l-.....	3	40	98	--
886	430	Propionic acid, 2-(2,4,5-trichlorophenoxy)-, 2-(2,4-dichlorophenoxy)-ethyl ester.....	0	100	3	--
887	804	Propionic acid, 2-(2,4,5-trichlorophenoxy)-, (dimethylcarbamoyl)-methyl ester.....	0	100	70	--
888	431	Propionic acid, 2-(2,4,5-trichlorophenoxy)-, 1-methyl-2-(2-(2,4,5-trichlorophenoxy)ethyl ester.....	0	100	2	--
889	420	Propionic acid, 2-(2,4,5-trichlorophenoxy)-, 2-(2,4,5-trichlorophenoxy)ethyl ester.....	0	100	6	--
890	424	Propionic acid, 2-(2,4,5-trichlorophenoxy)-, 2-(2,4,5-trichlorophenoxy)propyl ester.....	0	100	3	--

891	1031	Propionitrile, 3-amino-	0	100	9	--
892	997	Propionitrile, 3-bromo-	0	100	27	17851
893	1099	Propionitrile, 2-chloro-3-(tolylsulfonyl)-	5	10	98	--
894	1034	Propionitrile, 3-(heptylamino)-	0	100	83	--
895	1032	Propionitrile, 3,3'-iminodi-	0	100	7	2147
896	1160	Propionitrile, 3,3'-(methylimino)di-	0	100	2	26303
897	1033	Propionitrile, 3-(octylamino)-	3	20	38	20447
898	214	Propiophenone, 4'-chloro-3-piperidino-	5	10	90	--
899	1074	Propiophenone, 4'-hydroxy-, acetate	0	100	95	14053
900	405	Protopine	0	100	72	--
901	919	Pseudourea, 2-(6-bromopiperonyl)-2-thio-	0	100	77	31447
902	918	Pseudourea, 2-(6-bromopiperonyl)-2-thio-, hydrochloride	0	100	93	31446
903	963	Pseudourea, 2-(6-chloropiperonyl)-2-thio-	0	100	29	31502
904	930	Pseudourea, 2-(2,4-dichlorobenzyl)-2-thio-	0	100	16	31460
905	917	Pseudourea, 2-(2,4-dichlorobenzyl)-2-thio-, hydrochloride	2	80	97	23087
906	927	Pseudourea, 2-(2,3-dimethylbenzyl)-2-thio-	0	100	68	31457
907	926	Pseudourea, 2-(2,4-dimethylbenzyl)-2-thio-	0	100	36	31456
908	924	Pseudourea, 2-(2,4-dimethylbenzyl)-2-thio-, hydrochloride	0	100	79	31454
909	925	Pseudourea, 2-(3,4-dimethylbenzyl)-2-thio-, hydrochloride	2	80	95	31455
910	898	Pyran, 2-(6-bromopiperonyl)tetrahydro-	0	100	67	31396
911	899	Pyran, tetrahydro-2-(2-methoxy-1-methylethoxy)-	0	100	31	31397
912	882	Pyran, tetrahydro-2-(3,4-methylenedioxyphenoxy)-	0	100	67	20873
913	881	Pyran, tetrahydro-2-(piperonyloxy)-	0	100	70	20702-b
914	408	Quercetin	0	100	21	--
915	377	Quinidine, sulfate	0	100	3	--
916	494	Rose bengal	0	100	58	9093
917	406	Rutin	0	100	27	19098
918	1053	Salicylaldehyde, acetate	3	40	99	31885
919	847	Salicylaldehyde, 5-bromo-	3	40	98	31310
920	414	Salicylic acid, 5-bromo-	1	100	82	22146
921	760	Salicylic acid, 5-bromo-, methyl ester	3	40	84	4028
922	101	Salicylic acid, 4-[(2,4-dichlorophenoxy)acetamido]-	3	40	85	--
923	985	Semicarbazide, 4-phenyl-3-thio-	4	20	95	706
924	305	Serine, N-[(2,4-dichlorophenoxy)acetyl]-, DL-	0	100	55	--
925	874	Sodium borohydride	0	100	0	--
926	388	Solanidene	0	100	68	--
927	393	Solanidine	0	100	45	--
928	383	Solanine	0	100	33	--
929	398	Sparteine, sulfate	0	100	10	--
930	1036	Succinimide, N-(2-cyanoethyl)-	0	100	7	--
931	533	Sulfone, butyl 1,2-dichlorovinyl	5	10	97	--
932	532	Sulfone, 1,2-dichlorovinyl propyl	5	10	88	--
933	684	Sulfoxide, 3-chloropropyl octyl	0	100	64	25027
934	685	Sulfoxide, octyl propyl	1	100	97	25028
--	--	Terraclor. (See item 316.)	--	--	--	--
--	--	Thiolutin. (See item 554.)	--	--	--	--
--	--	Thiotepa. (See item 735.)	--	--	--	--
935	285	Threonine, N-[(4-chloro-o-tolyloxy)acetyl]-, L-	0	100	49	--

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
936	318	Threonine, N-[(2,4-dichlorophenoxy)acetyl]-, DL-	0	100	41	--
937	1004	Threonine, N-(2,2-dichloropropionyl)-, D-	0	100	51	--
938	1006	Threonine, N-(2,2-dichloropropionyl)-, DL-	0	100	41	--
939	1005	Threonine, N-(2,2-dichloropropionyl)-, L-	0	100	24	--
940	110	Threonine, N-[(2,4,5-trichlorophenoxy)acetyl]-, D-	1	100	96	--
941	108	Threonine, N-[(2,4,5-trichlorophenoxy)acetyl]-, DL-	0	100	57	--
942	116	Threonine, N-[(2,4,5-trichlorophenoxy)acetyl]-, L-	0	100	13	--
943	352	Threonine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, D-	0	100	46	--
944	353	Threonine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-	0	100	53	--
945	351	Threonine, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, L-	0	100	75	--
946	1192	Tin compound, dibutyl----dilaurate	0	100	15	26331
947	839	Tin compound, tributyl----acetate	2	80	95	25394
948	837	o-Toluanilide, 2'-chloro-	0	100	10	31225
949	834	o-Toluanilide, 4'-chloro-	0	100	2	31200
950	835	o-Toluanilide, 2',4'-dichloro-	0	100	9	30201
951	883	Toluene, 2-bromo-alpha-[2-(2-butoxyethoxy)ethoxy]-4,5-methylene-dioxy-	0	100	43	31371
952	861	Toluene, 2-bromo-alpha-(2-butoxyethoxy)-4,5-methylenedioxy-	0	100	79	31320
953	862	Toluene, 2-bromo-alpha-[2,2-dimethyl-3-(2-methylpropenyl)cyclo-propylmethoxy]-4,5-methylenedioxy-	0	100	1	31352
954	884	Toluene, 2-bromo-alpha-[2-(2-methoxyethoxy)ethoxy]-4,5-methylene-dioxy-	0	100	2	31372
955	860	Toluene, 2-bromo-alpha-[1-(methoxymethyl)ethoxy]-4,5-methylene-dioxy-	0	100	58	31319
956	69	Toluene, alpha-[2-(2-butoxyethoxy)ethoxy]-4,5-methylenedioxy-2-propyl-	3	40	89	14250
957	869	Toluene, 2-chloro-alpha-[2,2-dimethyl-3-(2-methylpropenyl)cyclo-propylmethoxy]-4,5-methylenedioxy-	0	100	4	31367
958	120	Toluene, alpha-chloro-p-ethoxy-	2	40	56	21162
959	870	Toluene, 2-chloro-alpha-(2-methoxyethoxy)-4,5-methylenedioxy-	0	100	10	31368
960	1102	Toluene-alpha,alpha-diol, 2-chloro-4,5-methylenedioxy-, diacetate	0	100	17	31990
961	1109	Toluene-alpha,alpha-diol, m-hydroxy-, triacetate	0	100	2	32024
962	1101	Toluene-alpha,alpha-diol, p-hydroxy-, triacetate	0	100	10	31985
963	1107	Toluene-alpha,alpha-diol, 4-hydroxy-3-methoxy-, triacetate	0	100	37	32022
964	1104	Toluene-alpha,alpha-diol, p-isopropyl-, diacetate	0	100	25	32019
965	1108	Toluene-alpha,alpha-diol, o-methoxy-, diacetate	0	100	8	32023
966	1106	Toluene-alpha,alpha-diol,3,4-methylenedioxy-, diacetate	0	100	15	32021
967	98	p-Toluenesulfonamide, N-[(p-chlorophenoxy)acetyl] -	1	80	52	--
968	97	p-Toluenesulfonamide, N-[(4-chloro-o-tolyloxy)acetyl]-	3	40	93	--
969	962	alpha-Toluenethiol, 2-chloro-4,5-methylenedioxy-	0	40	88	31501
970	928	alpha-Toluenethiol, 2,4-dichloro-	4	10	61	31458
971	559	m-Toluic acid, allyl ester	5	10	100	30127

972	558	m-Toluic acid, 2-bromoethyl ester	5	10	95	30107
973	557	m-Toluic acid, 2-chloroethyl ester	3	40	96	30103
974	1123	m-Toluic acid, 2,3-dibromopropyl ester	0	100	6	32068
975	560	m-Toluic acid, 2-propynyl ester	4	20	87	30132
976	521	o-Toluic acid, 2-bromoethyl ester	4	20	99	21985
977	833	o-Toluic acid, p-bromophenyl ester	0	100	21	31194
978	371	o-Toluic acid, 2-chloroethyl ester	1	100	98	21771
979	831	o-Toluic acid, p-chlorophenyl ester	0	100	28	31190
980	1122	o-Toluic acid, 2,3-dibromopropyl ester	0	100	27	32067
981	836	o-Toluic acid, 2,4-dichlorophenyl ester	0	100	10	31207
982	832	o-Toluic acid, 2,4,5-trichlorophenyl ester	0	100	24	31193
983	785	p-Toluic acid, 2-bromoethyl ester	4	20	98	31121
984	784	p-Toluic acid, 2-chloroethyl ester	3	40	96	31119
985	1121	p-Toluic acid, 2,3-dibromopropyl ester	0	100	22	32066
986	378	Tomatidine	0	100	50	--
987	404	Tomatine	0	100	71	17141
988	374	Tomatine, phosphate	0	100	3	--
989	93	Triazene, 1,3-diphenyl-	5	10	100	4858
990	251	Triazene, 1,3-diphenyl-3-hydroxy-	5	10	99	--
991	1056	s-Triazine, 2,4,6-tris(1-aziridinyl)-	0	100	4	25296
992	5	1H-1,2,4-Triazole-3-carbamic acid, 4-chloro-o-tolyl ester	5	10	94	--
993	705	6-Tridecanol, 3,9-diethyl-, formate	0	100	10	30459
--	--	Triethylenemelamine (TEM). (See item 991.)	--	--	--	--
--	--	Trithion. (See item 740.)	--	--	--	--
994	319	Tryptophan, N-[(2,4-dichlorophenoxy)acetyl]-, D-	0	100	41	--
995	358	Tryptophan, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, D-	0	100	14	--
996	359	Tryptophan, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, DL-	0	100	23	--
997	357	Tryptophan, N-[2-(2,4,5-trichlorophenoxy)propionyl]-, L-	0	100	12	--
998	233	10-Undecenoic acid	0	100	45	2065
999	753	Undecyl alcohol, formate	4	20	96	30729
1000	1057	Uracil, 5-fluoro-	0	100	6	25297
1001	720	Valeric acid, 2-bromoethyl ester	0	100	99	30514
1002	721	Valeric acid, 2-chloroethyl ester	0	100	64	30515
1003	763	Valeric acid, 5-amino-3-(1-hydroxy-1-methylethyl)-, gamma-lactone, hydrochloride	0	100	3	--
1004	1051	Valeric acid, 2-ethyl-4-methyl-, 2-bromoethyl ester	0	100	26	31862
1005	1050	Valeric acid, 2-ethyl-4-methyl-, 2-chloroethyl ester	0	100	41	31861
1006	531	Valeric acid, 2-methyl-, 2-bromoethyl ester	3	40	96	30027
1007	530	Valeric acid, 2-methyl-, 2-chloroethyl ester	1	100	96	30026
1008	308	Valine, N-[(p-chlorophenoxy)acetyl]-, DL-	0	100	57	--
1009	340	Valine, N-[(2,4-dichlorophenoxy)acetyl]-, D-	0	100	33	--
1010	342	Valine, N-[(2,4-dichlorophenoxy)acetyl]-, DL-	1	100	76	--
1011	341	Valine, N-[(2,4-dichlorophenoxy)acetyl]-, L-	0	100	26	--
1012	343	Valine, N-[(2,4,5-trichlorophenoxy)acetyl]-, DL-	1	100	90	--
1013	213	9-Xanthenone, 3-methyl-	4	20	95	--
1014	911	Xanthic acid, potassium salt	0	100	12	1364
1015	933	Xanthic acid, ethyl-, allyl ester	4	20	99	31463
1016	915	Xanthic acid, ethyl-, butyl ester	6	8	99	19799

TABLE 1.--Toxicity of chemicals screened against mixed populations of Rhabditis and Panagrellus spp.--Continued

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill	Entomology No. (ENT-)
1017	936	Xanthic acid, ethyl-, cyclopentyl ester.....	6	8	82	31466
1018	910	Xanthic acid, ethyl-, ethyl ester.....	5	20	98	1301
1019	934	Xanthic acid, ethyl-, isopropyl ester.....	4	20	98	31464
1020	932	Xanthic acid, ethyl-, methyl ester.....	3	40	99	31462
1021	937	Xanthic acid, ethyl-, phenethyl ester.....	0	100	93	31467
1022	914	Xanthic acid, ethyl-, propyl ester.....	6	8	84	19798
1023	935	Xanthic acid, ethyl-, 2-propynyl ester.....	5	10	98	31465
1024	403	Yohimbine, hydrochloride.....	0	100	65	--

TABLE 2.--Toxicity of chemicals of unknown or indefinite structure screened against mixed populations of Rhabditis and Panagrellus spp.

Item No.	Nematology No. (NEM-)	Chemical	Activity class	Dosage (p.p.m.)	Percent kill
1025	1045	Acrylonitrile, reaction product with bromoacetyl bromide	3	40	92
1026	1042	Acrylonitrile, reaction product with 2-(2,4-dichlorophenoxy)ethanol	2	80	88
1027	1043	Acrylonitrile, reaction product with nonanoic hydrazide	0	100	44
1028	1044	Acrylonitrile, reaction product with 2-pyridineëthanol	0	100	7
1029	204	Anisomycin	0	100	15
1030	401	Aspidospermine	0	100	51
1031	871	Castor pomace	0	100	0
1032	391	Digitalin, German	0	100	10
1033	373	Digitonin	0	100	30
1034	400	Digitoxin	0	100	40
1035	520	Fertidyne (amylose triiodide) No. 1 concentrate	1	100	98
1036	519	Fertidyne (beta-amylose triiodide) No. 1 concentrate	2	80	84
1037	850	Metal Hydrides, Inc. "FOA," water-soluble crude fish oil	0	100	13
1038	851	Metal Hydrides, Inc. "FOAH," water-soluble crude fish oil (FOA) containing 13 percent KBH_4	0	100	5
1039	205	Oligomycin	0	100	15
1040	395	Ouabain	0	100	5
1041	818	Phenyl ether, reaction product with chlorine	5	80	97
1042	535	Polymerized fatty acid (Empol 1022)	0	100	60
1043	443	Propionic acid, 2-(2,4-dichlorophenoxy)-, derivative mixture of alpha-protein hydrolysate	0	100	37
	445		0	100	18
	451		0	100	51
1044	437	Propionic acid, 2-(2,4-dichlorophenoxy)-, derivative mixture of blood protein hydrolysate	0	100	8
	447		0	100	34
1045	436	Propionic acid, 2-(2,4-dichlorophenoxy)-, derivative mixture of casein protein hydrolysate	0	100	17
	438		0	100	28
1046	444	Propionic acid, 2-(2,4-dichlorophenoxy)-, derivative mixture of chicken feather protein hydrolysate	0	100	24
	446		1	100	77
	449		0	100	38
1047	435	Propionic acid, 2-(2,4-dichlorophenoxy)-, derivative mixture of glue protein hydrolysate	0	100	46
	448		0	100	23
1048	440	Propionic acid, 2-(2,4-dichlorophenoxy)-, derivative mixture of meat meal protein hydrolysate	0	100	40
	450		0	100	23
1049	1037	Propionitrile, 3-amino-, reaction product with carbon disulfide	0	100	14
1050	50	PVP-iodine 10	3	40	99
1051	800	2-Pyridineëthanol, reaction product with nonanoyl chloride	1	100	87
1052	206	Rimocidin, sulfate	0	100	15
1053	895	Tin-san (a tributyltin complex)	5	10	98

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1	262	63	791	121	354	176	853
2	441	64	790	122	355	177	847
3	79	65	368	123	366	178	854
4	196	67	363	124	451	179	862
5	992	68	265	125	452	180	855
6	10	69	956	126	358	181	301
7	187	70	786	127	361	182	871
8	227	71	787	128	74	183	864
9	4	72	367	129	27	184	850
10	740	73	259	130	313	186	457
11	333	74	370	131	71	187	458
12	203	75	772	132	68	188	851
13	204	76	9	133	12	189	872
14	202	77	785	134	51	190	870
16	199	78	784	135	63	191	861
17	417	79	763	136	48	192	11
18	409	80	266	137	50	193	666
20	264	81	260	138	16	194	852
22	263	82	369	139	55	196	863
23	201	83	267	140	62	197	865
24	200	84	359	141	30	198	856
25	258	85	777	142	57	199	371
26	440	86	783	143	56		
29	175	87	782	144	69	200	10
30	194	88	779	145	17	201	275
31	405	89	778	146	20	202	99
32	195	90	780	147	60	203	857
34	365	91	781	148	35	204	1029
35	362	92	589	149	42	205	1039
36	357	93	989	150	67	206	1052
37	407	94	829	151	37	207	601
38	406	95	240	152	59	208	595
40	328	96	285	153	15	209	596
41	334	97	968	154	214	210	592
42	228	98	967	155	312	211	597
43	330	99	342	156	300	212	599
44	332			157	314	213	1013
45	331	100	350	158	773	214	898
46	347	101	922	159	217	215	701
47	329	105	685	160	726	216	700
48	341	106	658	161	741	217	699
49	212	107	246	162	167	218	593
50	1050	108	941	163	876	219	600
51	292	109	657	164	878	220	833
52	650	110	940	165	846	221	33
53	765	111	684	166	739	222	860
54	364	112	245	167	858	224	591
55	788	113	247	168	874	225	392
56	789	114	686	169	867	227	203
57	767	115	659	170	869	230	179
58	768	116	942	171	859	231	594
59	776	117	885	172	866	232	602
60	774	118	884	173	849	233	998
61	775	119	883	174	848	237	178
62	353	120	958	175	873	238	176

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240	177	302	235	363	250	420	889
241	828	303	236	364	248	421	209
242	819	304	241	365	249	422	184
243	827	305	924	366	669	423	186
246	39	306	664	367	671	424	890
247	36	307	573	368	670	425	174
249	326	308	1008	369	558	426	211
250	387	309	291	370	486	427	185
251	990	310	237	371	978	428	881
252	80	311	505	372	607	430	886
253	134	312	239	373	1033	431	888
254	880	313	295	374	988	432	182
255	630	314	665	375	229	435	1047
256	631	315	635	376	603	436	1045
257	620	316	238	377	915	437	1044
258	621	317	633	378	986	438	1045
259	617	318	936	379	604	440	1048
260	624	319	994	380	298	443	1043
261	731	320	674	381	640	444	1046
262	632	321	618	382	760	445	1043
263	40	325	494	383	928	446	1046
264	625	326	181	384	374	447	1044
265	626	327	583	385	280	448	1047
266	619	328	648	386	466	449	1046
267	504	329	634	387	608	450	1048
268	501	330	294	388	926	451	1043
269	497	331	296	389	556	452	473
270	496	332	677	390	605	454	471
271	500	333	676	391	1032	456	29
272	503	334	793	392	467	457	44
275	234	335	792	393	927	458	76
276	286	336	251	394	377	459	38
277	231	337	253	395	1040	460	19
278	243	338	252	396	402	461	54
279	646	339	232	397	759	462	14
280	675	340	1009	398	929	463	13
281	293	341	1011	399	761	464	47
282	645	342	1010			465	49
283	281	343	1012	400	1034	466	46
284	233	344	297	401	1030	467	22
285	935	345	508	402	696	468	45
286	582	346	506	403	1024	469	52
287	244	347	507	404	987	470	24
288	284	348	662	405	900	471	18
289	230	349	660	406	917	472	23
290	183	350	661	407	7	473	34
291	288	351	945	408	914	474	73
292	647	352	943	409	492	475	21
293	287	353	944	410	882	476	25
294	581	354	689	411	799	477	75
295	290	355	687	412	279	478	61
296	283	356	688	413	798	479	65
297	289	357	997	414	920	480	454
298	282	358	995	415	728	481	70
299	644	359	996	416	317	482	64
		360	256	417	729	483	31
300	649	361	254	418	210	484	139
301	242	362	255	419	208	485	58

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486	868	559	971	629	97	690	807
487	875	560	975	631	86	691	188
488	877	561	345	632	148	692	190
489	356	562	344	633	117	693	91
490	397	563	571	634	109	694	192
491	598	564	346	635	170	695	193
494	916	565	360	636	169	696	189
495	557	566	261	637	100	697	560
497	809	567	695	638	101	698	487
498	733	568	77	639	161	699	491
499	736	569	400	640	87		
		570	399	641	114	700	191
500	811	571	817	642	149	701	509
501	220	572	812	643	131	702	721
502	474	573	826	644	132	703	559
503	609	574	824	645	150	704	724
504	610	575	821	646	138	705	993
505	614	576	825	647	102	706	488
507	615	577	830	648	85	707	489
508	612	578	818	649	171	708	490
509	611	579	813	650	151	709	570
510	613	580	816	651	92	710	569
511	565	582	815	652	93	711	797
512	386	583	769	653	157	712	806
519	1036	584	814	654	88	713	722
520	1035	585	823	655	94	714	805
521	976	586	443	656	96	715	831
522	413	587	403	657	103	716	390
523	418	588	636	658	127	717	616
524	419	589	410	659	108	718	629
525	412	590	404	660	90	719	627
526	414	593	349	661	152	720	1001
527	415	594	348	662	128	721	1002
528	416	596	107	663	112	724	737
529	411	597	82	664	166	725	668
530	1007	598	115	665	113	726	173
531	1006	599	81	666	122	727	78
532	932	600	158	667	123	728	340
533	931	601	163	668	98	729	804
535	1042	602	104	669	154	730	832
536	690	605	137	670	106	731	391
537	511	607	89	671	129	732	126
542	756	609	145	672	162	733	43
543	755	610	116	673	143	734	337
544	748	611	120	674	168	735	622
545	757	612	118	675	83	736	327
546	746	613	136	676	111	737	446
547	753	614	121	677	810	738	338
548	745	615	141	678	41	739	307
549	747	616	146	679	172	740	718
550	750	617	133	680	215	741	153
551	754	618	124	681	32	742	66
552	752	619	130	683	564	743	155
553	751	623	147	684	933	744	639
554	749	624	140	685	934	745	637
556	667	626	156	686	808	746	278
557	973	627	160	688	725	747	277
558	972	628	142	689	510	748	159

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749	495	812	738	879	681	938	713
750	135	814	764	880	682	939	712
751	730	817	566	881	913	940	714
752	842	818	1041	882	912	941	715
753	999	820	225	883	951	942	706
754	396	821	742	884	954	943	429
755	628	822	351	885	515	944	477
756	110	824	442	886	820	945	478
757	53	825	568	887	533	946	422
758	586	826	590	888	125	947	423
759	585	827	795	889	514	948	430
760	921	828	420	890	336	949	638
762	472	829	723	891	513	950	388
763	1003	830	555	892	770	951	711
765	470	831	979	893	693	952	709
766	716	832	982	894	316	953	710
767	309	833	977	895	1053	954	434
768	95	834	949	898	910	955	436
770	493	835	950	899	911	956	432
771	105	836	981			957	431
772	719	837	948	900	562	958	425
773	28	839	947	901	453	959	424
774	720	840	206	902	448	960	426
775	717	841	311	903	692	961	428
776	302	842	378	904	563	962	969
777	306	843	447	905	389	963	903
778	305	844	449	906	822	964	732
779	308	845	165	907	523	965	520
780	198	846	72	908	512	966	550
781	197	847	919	909	460	967	438
782	303	848	727	910	1018	968	461
783	304	849	429	911	1014	969	524
784	984	850	1037	912	268	970	525
785	983	851	1038	913	465	971	517
786	271	852	743	914	1022	972	522
788	826	854	758	915	1016	973	521
789	321	855	708	916	455	974	435
790	879	857	273	917	905	975	437
791	732	858	499	918	902	976	433
794	372	859	498	919	901	977	439
795	588	860	955	920	310	978	427
796	642	861	952	921	561	979	673
797	587	862	953	922	840	980	226
798	702	863	339	923	395	981	218
799	703	864	537	924	908	982	324
		865	6	925	909	983	322
800	1051	866	534	926	907	984	323
801	641	867	518	927	906	985	923
802	398	868	532	928	970	986	567
803	704	869	957	929	502	987	744
804	887	870	959	930	904	988	794
805	257	871	1031	931	462	990	705
806	119	872	376	932	1020	991	707
807	144	874	925	933	1015	992	606
808	164	875	656	934	1019	993	699
809	84	876	654	935	1023	994	697
810	880	877	655	936	1017	995	223
811	516	878	683	937	1021	996	221

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998	651	1039	26	1081	580	1123	974
999	653	1040	222	1082	546	1124	335
		1041	219	1083	549	1125	545
1000	652	1042	1026	1084	548	1126	544
1001	678	1043	1027	1085	480	1127	393
1002	680	1044	1028	1086	482	1128	394
1003	679	1045	1025	1087	481	1146	527
1004	937	1046	673	1088	483	1147	529
1005	939	1047	384	1089	535	1148	547
1006	938	1048	379	1090	536	1149	540
1007	579	1049	272	1091	484	1150	543
1008	771	1050	1005	1092	485	1151	531
1009	319	1051	1004	1093	526	1152	835
1010	315	1052	299	1094	528	1153	584
1011	274	1053	918	1095	541	1154	694
1012	8	1054	552	1096	530	1155	456
1013	445	1055	735	1097	542	1156	837
1014	320	1056	991	1098	538	1157	796
1015	401	1057	1000	1099	893	1158	843
1016	475	1058	572			1159	836
1017	476	1059	734	1100	373	1160	896
1018	2	1060	5	1101	962	1161	180
1019	444	1061	574	1102	960	1162	207
1020	691	1062	269	1103	643	1163	450
1021	325	1063	841	1104	964	1164	463
1022	519	1064	383	1105	380	1165	464
1023	276	1065	1	1106	966	1166	459
1024	479	1066	3	1107	963	1167	551
1025	553	1067	663	1108	965	1175	318
1026	382	1068	468	1109	961	1192	946
1027	270	1069	800	1110	839	1193	766
1028	352	1070	421	1112	838		
1029	385	1071	408	1113	845		
1030	381	1072	539	1114	844	1202	554
1031	891	1073	224	1115	834	1215	762
1032	895	1074	899	1116	801	1230	375
1033	897	1075	343	1117	623	1231	672
1034	894	1076	575	1118	803	1232	205
1035	698	1077	578	1119	469		
1036	930	1078	576	1120	802		
1037	1049	1079	579	1121	985	1365	213

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20293	778
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21305	863
21306	865
21307	856
21332	857
21355	601
21356	595
21357	596
21373	592
21376	597
21377	599
21389	594
21290	602
21391	593
21392	600
21393	833
21394	33
21395	860
21397	591
21398	392
21400	203
21407	179
21408	178
21409	176
21411	177
21430	39
21431	36
21463	65
21467	326
21483	80
21528	134
21544	630
21545	631
21546	620
21547	621
21548	617
21549	624
21580	632
21585	40
21586	625
21587	626
21588	619
21665	618
21672	494
21687	486
21771	978
21906	454
21925	139
21926	58
21927	868
21929	875
21930	877
21935	356
21970	397
21971	598
21985	976
22035	221
22125	269
22146	920
22262	771
22355	160
22356	70
22359	142
22360	61
22389	97
22391	86
22399	148
22400	64
22440	117
22716	109
22717	31
22848	441
22876-a	520
22998	707
23024	316
23087	905
23253	170
23254	169
23255	100
23256	101
23257	161
23258	87
23259	114
23260	149
23261	131
23262	132
23263	150
23264	138
23265	102
23266	85
23267	171
23268	151
23269	92
23270	93
23364	157
23366	88
23367	94
23368	96
23369	103
23370	127
23371	108
23372	90
23373	152
23374	128
23375	112
23376	166
23377	113
23378	122
23379	123
23380	98
23381	154
23382	106
23383	129
23384	162
23385	143
23386	168
23387	83
23389	111
23437	741
23472	752
23482	753
23601	756
23708	740
24485	10
24487	371
24692	504
24702	503
24802	669
24803	671
24804	670
24805	558
24946	667
24955	413
24956	418
24957	419
24958	412
24959	414
24960	415
24961	416
24962	411
24988	738
25026	564
25027	933
25028	934
25029	808
25031	725
25032	510
25036	810
25273	880
25295	735
25296	991
25297	1000
25299-a	572
25301	734
25318	183
25319	883
25320	289
25331	946
25394	947
25515	737
25597	743
25667	5
25718	375
25719	672
26084-a	575
26105	705
26107	703
26172	691
26176	325
26258	578
26259	576
26260	579
26261	577
26262	580
26303	896
26331	946
26332	766
26477	690
26538	493

ENT-	Item	ENT-	Item	ENT-	Item	ENT-	Item
26539	758	30602	278	31295	378	31459	502
		30603	277	31304	447	31460	904
30026	1007	30662	495	31305	449	31461	462
30027	1006	30699	135	31307	165	31462	1020
30103	973	30726	730	31309	72	31463	1015
30107	972	30727	842	31310	919	31464	1019
30127	971	30729	999	31311	727	31465	1023
30132	975	30730	396	31312	429	31466	1017
30158	345	30731	628	31316	273	31467	1021
30159	344	30732	110	31317	499	31471	422
30194	346	30739	53	31318	498	31473	423
30200	360	30740	586	31319	955	31474	430
30201	950	30741	585	31320	952	31477	638
30204	41	30900	173	31322-a	477	31483	388
30206	261	30901	78	31323-a	478	31484	711
30207	695	30902	340	31352	953	31485	709
30211	77	30903	804	31355	339	31488	710
30220	400	30905	832	31357	537	31491	434
30221	399	30906	391	31362	6	31492	436
30328	172	30913	126	31363	534	31493	432
30370	215	30914	43	31365	518	31494	431
30395	32	30920	337	31366	532	31495	425
30413	807	30965	622	31367	957	31496	424
30417	188	30966	327	31368	959	31497	426
30422	190	30974	446	31371	951	31498	428
30424	91	30975	338	31372	954	31501	969
30426	192	30984	307	31381	515	31502	903
30427	193	30985	718	31382	820	31504	550
30432	189			31383	533	31505	438
30435	560	31002	716	31387	125	31506	461
30436	487	31005	309	31390	514	31520	524
30441	491	31011	164	31392	336	31521	525
30442	191	31051	105	31393	513	31525	517
30443	509	31052	719	31394	770	31530	522
30444	721	31053	28	31395	693	31531	521
30447	559	31054	720	31396	910	31543	435
30459	993	31055	717	31397	911	31544	437
30461	488	31058	302	31399	562	31545	433
30462	489	31061	84	31401	453	31546	439
30463	490	31062	306	31403	448	31547	427
30486	570	31083	305	31405	692	31621	319
30489	569	31084	308	31407	563	31622	315
30490	797	31102	198	31408	389	31623	274
30491	806	31104	197	31409	822	31624	8
30493	722	31113	303	31420	523	31625	445
30494	805	31114	304	31426	512	31626	320
30495	831	31119	984	31428	460	31627	401
30496	390	31121	983	31446	902	31658	475
30497	616	31156	516	31447	901	31660	476
30503	629	31190	979	31448	310	31664	2
30513	627	31193	982	31449	561	31665	444
30514	1001	31194	977	31452	840	31687	519
30515	1002	31200	949	31453	395	31691	276
30589	153	31207	981	31454	908	31800	479
30590	66	31209	745	31455	909	31820	553
30591	155	31225	948	31456	907	31830-a	384
30594	639	31254	206	31457	906	31837	382
30595	637	31255	311	31458	970	31838	270

ENT-	Item	ENT-	Item	ENT-	Item	ENT-	Item
31839	352	31951	482	32023	965	32107	529
31840	385	31952	481	32024	961	32108	547
31841	381	31953	483	32042	839	32109	540
31843	379	31954	535	32043	838	32110	543
31845	272	31955	536	32044	845	32112	531
31861	1005	31956	484	32051	844	32113	835
31862	1004	31957	485	32052	834	32114	584
31884	299	31959	526	32061	801	32115	694
31885	918	31960	528	32062	623	32131	456
31888	552	31961	541	32063	803	32132	837
31898	841	31962	530	32064	469	32134	796
31899	383	31963	542	32065	802	32135	843
31905	1	31964	538	32066	985	32136	836
31910	3	31974	373	32067	980	32137	180
31928	663	31985	962	32068	974	32138	207
31929	468	31990	960	32069	335	32139	450
31942	421	31999	643	32071	545	32142	463
31943	408			32073	544	32143	464
31944	546	32019	964	32074	393	32149	459
31945	549	32020	380	32075	394	32150	551
31949	548	32021	966	32106	527	32445	205
31950	480	32022	963				